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An AW Ba in Africa

By

MAJOR
HENRY VON KOLNITZ
Coast Artillery Corps

This is the story of an automatic weapons battalion from its conversion from a cavalry unit to the end of the Battle of Kasserine.

October 6, 1940, saw the yellow hat cords of an old cavalry outfit replaced by the red of the Coast Artillery. The battalion was now to be known as the X Separate Battalion Coast Artillery (AA) (Mobile) (37mm). It left shortly thereafter for a training center in Texas where it trained for sixteen months in the varied subjects necessary to produce a good, smooth working, well-disciplined antiaircraft unit. While a shortage of some matériel existed, the Battalion made many long motor marches including a thousand mile problem with many varied defenses and changes of position under all sorts of conditions. At the end of this time, despite the loss of two complete batteries, sent overseas, and a turnover in officer personnel of over 100%, the Battalion was a closely knit unit with *esprit* and morale that was to pay dividends later on.

From the AAATC, the Battalion went to the newly opened Desert Training Center and there received a further polish to its training. Physical conditioning and living under difficult field conditions day in and day out at temperatures ranging from 100° to 140°, toughened the men and improved their self-confidence. It was here that the Battalion received its Bofors guns, without directors. It was here that the daily "grooming by the numbers" of the motor transport was instituted. How thankful we were to be for this later.

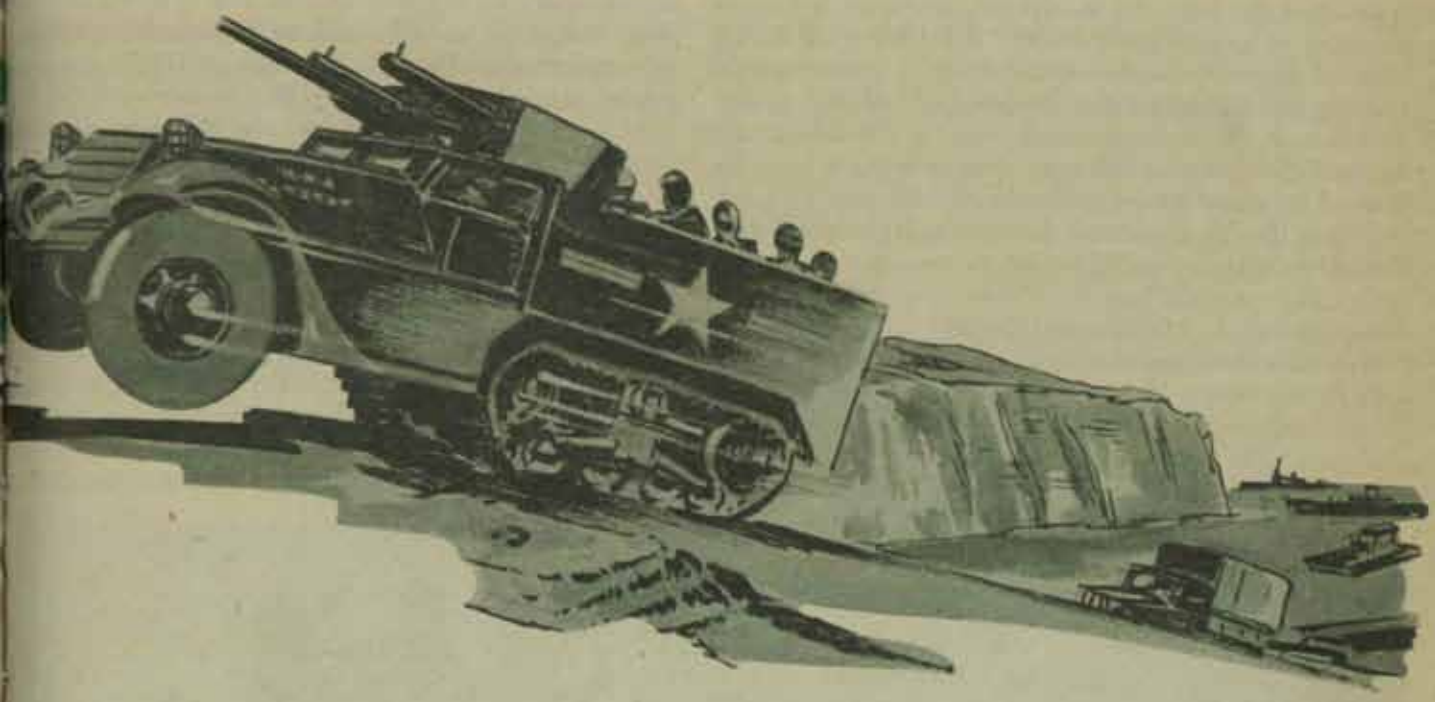
After three months, May, June and July, in the desert, the Battalion was rushed overseas to supply the First Infantry Division with its antiaircraft.

Upon arrival in England, there was a lull during which equipment was being assembled. During this time the Ba talion Commander and S-3 visited all British light ack ac installations within fifty to seventy-five miles and, as w their scheme, received gratefully the invitations of the unit commanders to have the junior officers and noncom missioned officers spend several days at their operation gun sites. Another plan, whereby the services of th artillery mechanics and fire control electricians with goodly supply of assistants were offered a local Ordnan shop, saw the Battalion get back a large group of men we trained and experienced in the care, adjustment, and repa of guns, oil units, and directors. This was to prove of i estimable value.

After some six weeks in the comfort of a large Briti barracks, the Division left to undergo the amphibious trai ing which was to be put into practice November 8th Oran. Here the Bofors guns were loaded into all sorts landing craft and they were unloaded and dragged acro beaches by every sort of power from half-tracks to ma power. Many landings were made on problems whic closely simulated the actual landing. Finally the vehicl and guns were water-proofed, tested and loaded on boa the convoy. A few days later the Battalion went aboard sh and the next time it was to set foot to land would be via th surf on D Day.

The Battalion had been increased by attachment of tw

talion



ditional batteries in England and was, therefore, able to nd two Bofors batteries with each of three combat teams. he initial mission was protection of the beach and landg with a later displacement. The S-3 and Master Gunner eeded the Battalion ashore as an advanced reconnaisnce party to check the gun positions which had been lected from map and aerial photographs. The Battalion nded, carrying their machine guns and ammunition and tting up a beach defense prior to daylight.

The landings were uneventful but considerable resistnce developed later and the Battalion had its first taste of illery and machine gun fire. No planes were able to pass e umbrella of Spitfires and Hurricanes provided by Genal Doolittle. The second day saw two planes attack the rtion of beach covered by A & B Batteries. They were th promptly shot down and as a result the antiaircraft's ck soared.

After St. Cloud was by-passed, one and a half batteries re taken up to the outskirts of Oran which they entered hen resistance ceased and set up the defense of the town d harbors in positions selected by map reconnaissance hile on shipboard, later verified by ground reconnaissance ade by the Battalion Commander and S-3. After some ys in Oran during which time the defenses were strengthed by another battery and platoon, the Battalion moved the airports at La Senia and Tafaraoui where a static e was enjoyed for about two weeks.

During this time re-equipment and reorganization were ried out, along with intensive training, particularly in cking and care and maintenance of equipment and the nduct of schools which qualified every noncommissioned officer in a gun section in the care and adjustment of the remote control system.

At this point the same procedure used in motor vehicle maintenance was established for the fire unit matériel. A systematic maintenance schedule was issued, detailing daily, every other day, bi-weekly, weekly, etc., tasks. The guns and matériel were at all times to be kept spotless, inside and out, wheels and lower carriage as well as top carriage. The gun and mount were to be kept as a rifle would be for inspection. They were.

The importance of maintenance at this level cannot be overstressed. Proper function of the fire unit requires it. But leaving out the matériel aspect, the self pride, *esprit* and discipline instilled by this is of paramount value. A unit with dirty guns soon becomes dirty in all phases of its life. Men grow beards, don't bathe, wear dirty clothes, and their efficiency becomes very low. It was required that not only would the matériel be maintained properly, but all personnel must be clean shaven, and keep uniforms, web equipment and leather clean. There was no laundry service. The let-down in discipline and morale when this is not done is marked. This was one of the most important facts we learned from the Royal Artillery.

During this time the Battalion organized and dispatched two airborne machine gun detachments of eight guns each to the Tunisian front. Shortly thereafter the Battalion was filled to T/O strength in vehicles and headed East.

Upon reaching Algiers it was found that the Battalion had been assigned to a British Ack Ack Brigade and it was with some doubts that the Staff reported to them in Bongie. The doubts were quickly dispelled as the Brigadier and his

staff were most cordial and helpful and became very close friends. The "commitments" were quickly filled and again the Battalion settled down to intensive training during its daylight hours. Two batteries went to Philippeville and soon entered into action against night bombers with some success. The assignment on the coast was shortly terminated but not before all batteries had been in action. Here too, every opportunity was taken to improve the technical training of the men. As an example, whenever it became necessary to send a Director to the Royal Electrical & Mechanical Engineers workshop for repair, a spare Director was sent and *all* Fire Control Technicians and their understudies made the same repair to the spare as was being made by the REME on the bad one. And here again carefully selected personnel was placed in the REME shops for training since the more qualified Director and gun mechanics available the better would be the performance of the fire units. No one could have been more coöperative than the officers and men of our adopted Brigade.

The next move saw the Battalion finally reach Tunisia. One battery was at Yonks-les-Bains, short of the Tunisian border, and one at Thelepte. Both were in action from the start. The battery at Yonks went into action as it arrived against a flight of seven Ju88's and it chalked up one

camouflage difficulties was presented. And to dig-in a gu completely required a deeper hole and more time. Althoug it was not a problem often, provision for drainage must b made, and a dug-in site was more difficult to drain satis factorily.

A completely built-up position was easy to drain, offered good protection against the antipersonnel bomb but wa difficult to camouflage on the bare plains found there. The dirt necessary for the built-up wall had to be hauled from some narrow pit and the truck-tracks and pit complicated the camouflage problem, already difficult. Here again, thi type of gun site required a good deal of time to make.

As a standard, when possible, the Battalion adopted a very small half dug-in half built-up position. The spoil from the gun pit, power plant pit, and machine gun pit was usually sufficient for the parapet. Digging in only half way effects a considerable saving in time. Another saving in time and labor was made by placing the Director in pro longation of the axis of the gun chassis. It was felt that no appreciable loss of stability would result and the saving in size of hole and digging was considerable. The gun pit was usually dug as a rectangular shaped pit whose axis was along the direction of the azimuth of the center line of the dead space area, always furnished by Battalion Headquarters

Crew of antiaircraft guns in half-track await orders to commence firing on approaching bomber aircraft. Tunisia.

Prior to this time the simple fortifications used on the coast had been adequate but it was realized that Tunisia was something else again. The Battalion built three types of positions, completely dug-in, completely built up, and half dug-in half built up. This article does not attempt to state that any one of these is preferable at all times. However, for the conditions met with at that time, it was felt that the half dug-in half built-up, very small position possessed several advantages.

In the first place Jerry dropped a very nasty antipersonnel bomb which left a shallow crater only a few inches deep and usually the tail of the bomb fell in the crater, showing that the entire force was lateral, parallel to the surface of the ground. A completely dug-in position offered poor protection. Also a problem in removal of spoil and the attendant

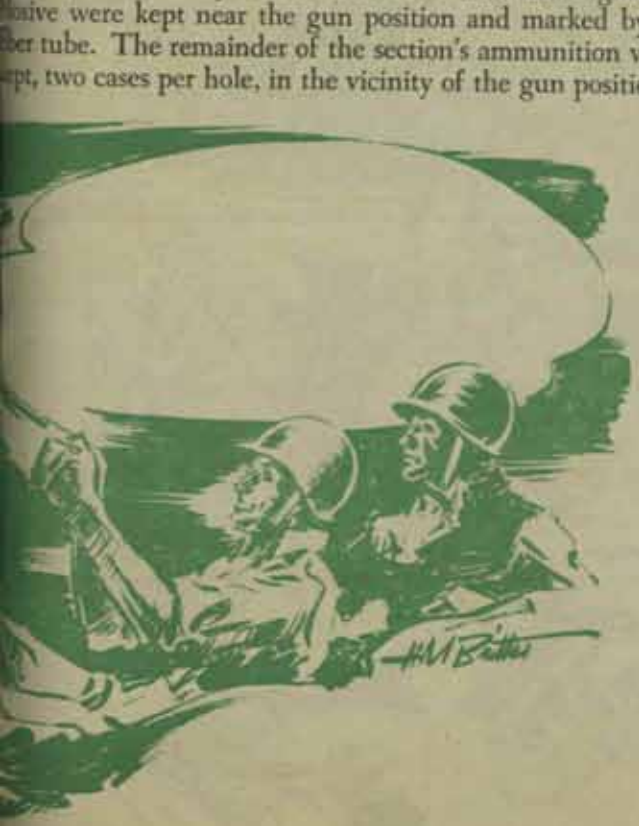
hen more than one battery was involved in a defensive
t-up. The gun was rolled in from the rear end (Director
nd) and the gun and Director pit closed in by suitable
evetting. In some positions—for instance, a gun site in an
ld Roman river, the rectangular shape was retained al-
ough it was usually closed in to a circular or somewhat
offin-shaped form. The outriggers extended well into the
des, with a recess sandbagged in to permit rotation of jack
andles. Wheels were always removed and dug-in sepa-
ately near the position. Four recesses were left at suitable
cations to hold a case each of ready ammunition. The
irector pit was separated from the gun pit by a sandbag
all with an angled blast-proof passageway.

The parapet was built up of spoil. It was imperative
at the six to eight inches of topsoil be carefully removed
nd placed to one side for use in covering the final parapet
nd sloped wall so as to blend it into the surrounding
round. It sloped very gradually to form a mound of
egular outline, the taper of the wall being uneven. This
erved two purposes. It produces a mound which is quite
atural in appearance and outline and eliminates shadow.

The Director tripod was usually placed on small squares
f wood or a triangular platform and in extreme cases where
he soft soil required it, a short 2" x 4" piling was driven
nder each foot.

The gun muzzle protruded several feet beyond the inner
le of the parapet, reducing dust and muzzle blast. The
un was levelled as low as possible, with the jacks only
ightly extended. In this position the top of the parapet
hould allow depression to between + 5° and 0°. For
orizontal fire four or five turns on each jack handle would
ise the carriage evenly to permit negative depression.

Routinely only five cases of 40mm high explosive shell
re kept within the gun position, four in the recesses and
he open case convenient to No. 10. Two additional cases
ith clips alternately loaded with A.P. shot and high ex-
losive were kept near the gun position and marked by a
ber tube. The remainder of the section's ammunition was
ept, two cases per hole, in the vicinity of the gun position.



Machine gun ammunition was similarly treated. It was preferable to keep more unopened cases of ammunition with fewer filled chests, saving maintenance time. All cal. .50 ammunition was linked in the cases. *All* ammunition was cleaned and maintained every day. What price a hit if through neglect the fuse has corroded and fails to function?

Camouflage and/or disperson were very important. Nets were numerous and used on everything where they were practical. Each vehicle had its own net which was used if the vehicle was stopped for a period of twenty minutes or longer. No overhead camouflage was ever used over the gun or machine gun. No mud was permitted on a gun under the guise of camouflage. Disruptive pattern painting was effective when suitable colors were obtainable. Even the most carefully camouflaged position, however, will be revealed if the gun is left at any appreciable elevation. Living quarters were kept at a minimum of sixty yards from the gun site and these were also camouflaged.

Slit trenches or foxholes were not dug in the vicinity of the gun position unless high altitude bombardment or artillery fire was a possibility. There was no high altitude bombing experienced by the Battalion in Tunisia during this period. Slit trenches were numerous in the living area. It was felt that the gun position when properly built afforded excellent protection against low flying attack.

The Battalion was somewhat scattered during this period. One battery was on the coast, one south of Constantine, one near Tebessa and one at Thelepte, where the Battalion Headquarters was located. In addition the Battalion had attached to it a British Battery of eight 3.7-inch heavy ack ack, two airborne machine gun batteries and some British light ack ack. Supply and administration were real problems.

From the start many actions were engaged in. Jerry was quite active in the early stages and made at least daily visits to the airfields the Battalion was covering. The effectiveness of fire increased steadily and toward the end of the stay the greater majority of the Me's and F.W.'s fired on were hit.

Unfortunately one can seldom tell whether or not anti-aircraft fire has been effective. Me's and F.W.'s don't shed feathers as a duck does and many times it would be learned several days later that the "bird" came down. As a result the S-3 reports do not tell the true story. By the end of the Tunisian campaign the Battalion had fifty-one destroyed and forty-five probables on the official sheet.

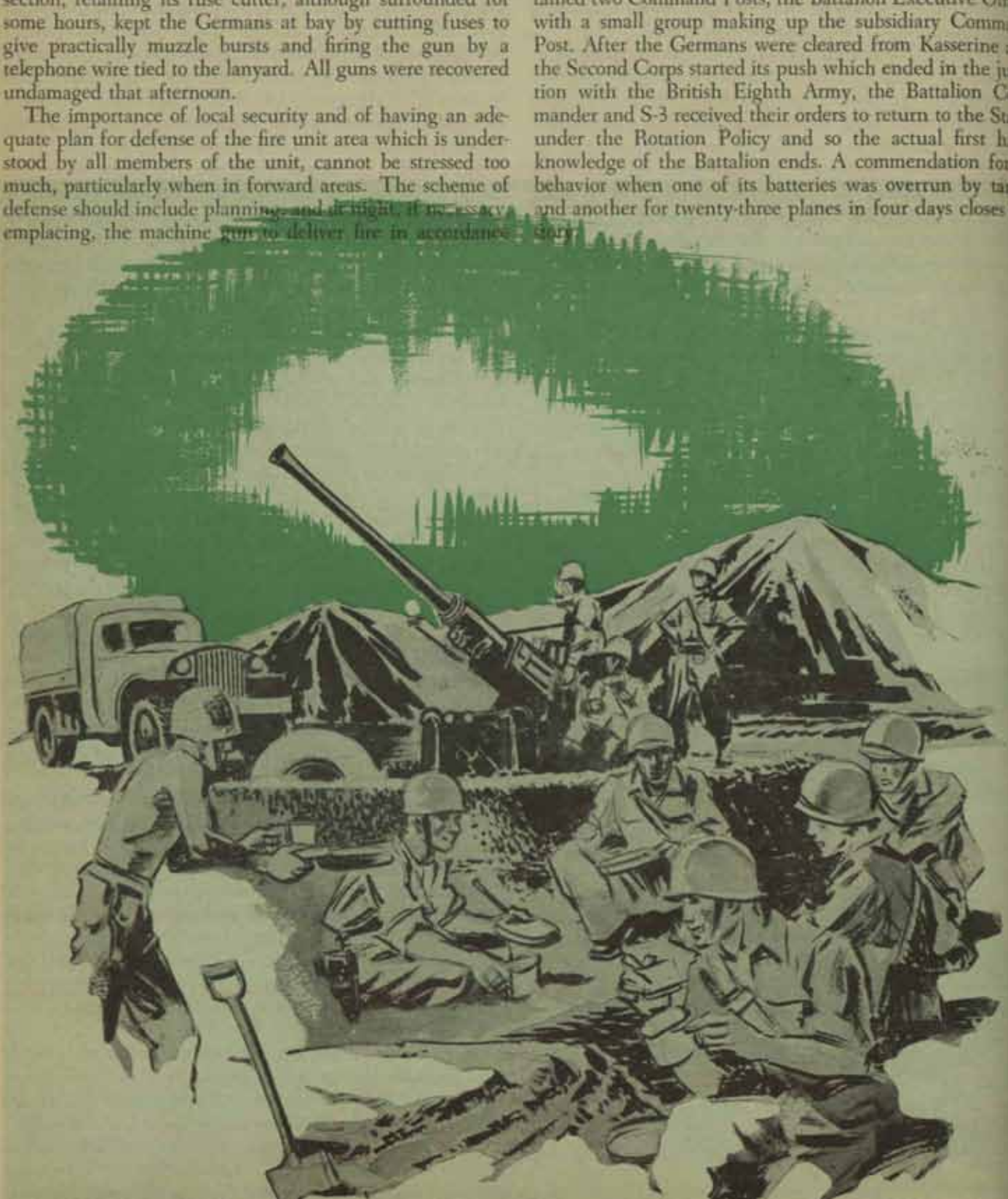
As a routine procedure the power plant and motors were warmed up so that all was in readiness for the morning stand-to, thirty minutes before dawn until 0900 hours. In the afternoon the stand-to began at 1630 and lasted until the last patrol had landed. Between times two men rode the seats and another served as lookout, this job being rotated every twenty minutes. These three men were on two hours and had to be able to fire the gun satisfactorily on FAS control. Half of the gun section followed the training schedule, the other half being on the alert status. These were reversed every half day.

Gradually the other batteries were brought to Tunisia and given various missions in the general vicinity of Thelepte where the Battalion Headquarters remained. Finally one day the Battalion was relieved from its assignment with the British Brigade and came under control of the American Second Corps. A few days later Jerry came through Gafsa and Sbeitla and the trouble began. Retreat-

ing in a snow storm one night, the Battalion sent its batteries to protect the few field artillery battalions at Kasserine. The Battalion Command Post was set up in some woods near Bon Chebka and in another day or so our old friends the First Division showed up, and to our relief the Battalion was again attached to the Division where it covered the field artillery. During the Kasserine action three guns of "D" Battery were overrun by a German infantry attack at dawn one morning, along with five guns of the field artillery Battery "D" was protecting. Another 105mm section, retaining its fuse cutter, although surrounded for some hours, kept the Germans at bay by cutting fuses to give practically muzzle bursts and firing the gun by a telephone wire tied to the lanyard. All guns were recovered undamaged that afternoon.

The importance of local security and of having an adequate plan for defense of the fire unit area which is understood by all members of the unit, cannot be stressed too much, particularly when in forward areas. The scheme of defense should include planning and if necessary emplacing, the machine gun to deliver fire in accordance with the accepted principles for employment of ground machine guns. Outposts, trip wires, etc., should be at least 10 yards outside the gun position to afford sufficient warning. Members of the fire unit should be conversant with their exact duties in an action involving local defense and should be able to find their places in the dark.

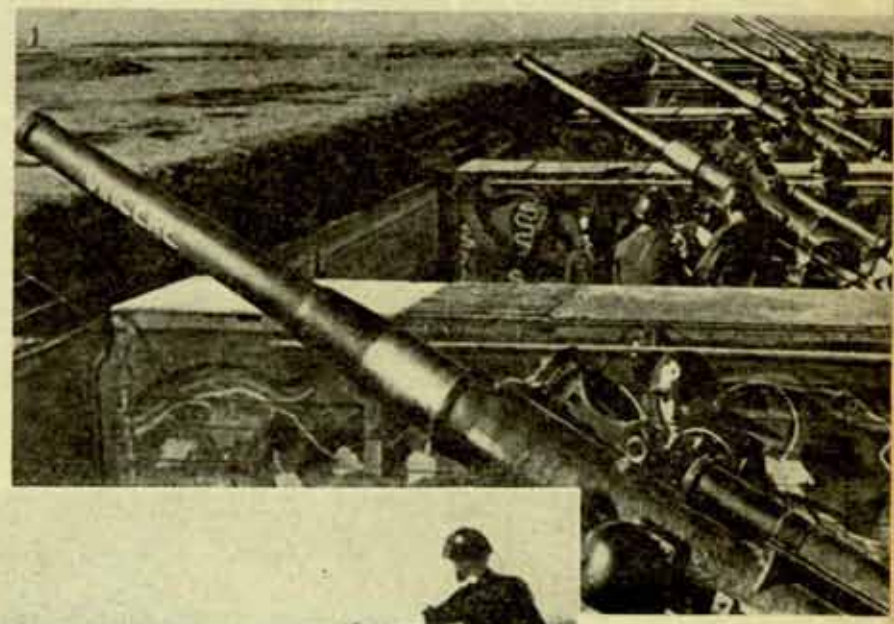
The Battle of Kasserine found the Battalion with attachments ranging from half track units to airborne machine gun batteries—even 90mm guns were attached. The dispositions were over such a wide area that the Battalion maintained two Command Posts, the Battalion Executive Officer with a small group making up the subsidiary Command Post. After the Germans were cleared from Kasserine and the Second Corps started its push which ended in the junction with the British Eighth Army, the Battalion Commander and S-3 received their orders to return to the States under the Rotation Policy and so the actual first hand knowledge of the Battalion ends. A commendation for its behavior when one of its batteries was overrun by tanks and another for twenty-three planes in four days closes the story.



"Impregnable" Coast Defenses of SICILY

Prior to the invasion of Sicily by the Allies, Italy widely publicized to her own people her "impregnable" coast defenses of Sicily. These were supposed to make any attempt at invasion a suicide attack.

sed Railway Artillery. Coastal Batteries of the Kilmart" (over-age soldiers used in areas adjoining home towns). These guns are of approximately 6-inch caliber (149mm or 152mm) with ge around 20,000 to 24,000 yards, mounted on cars. Italy placed great faith in her railway artillery which had been extensively developed in dium and major caliber sizes. Strategically lo- ed railways provided for their employment on g stretches of unpopulated coast to augment the nsive strength of fixed batteries at strategic positions.



Of the same general type as the railway guns pictured above, these guns were emplaced on high ground in the vicinity of possible landing beaches on Sicily's southern coast

Italian infantry in position awaited the arrival of Allied landing parties.

AA in the

Acme.

An example of old AA equipment used in 1939.

In the first two years of the war, AA guns were responsible for destroying nearly 600 enemy aircraft over Britain. Many more were damaged by AA fire, and of these a fair proportion failed to reach their home bases. This is not purely conjecture, but inference from a number of factors, such as the condition of damaged aircraft when last seen and the examination of wreckage and bodies washed ashore.

But the principal achievements of AA guns lie not in the destruction of enemy aircraft, in which their successes, though substantial, are bound to be few compared with the successes of fighter aircraft. The value of the guns is in the prevention of accurate bombing and in preventing enemy aircraft reaching their objectives, particularly by night. The effect of AA gunfire is, generally speaking, to keep all enemy aircraft at a high altitude and to deter them from flying on the straight and even course necessary for accurate bombing. If a 'plane cannot fly low or straight, it cannot bomb accurately and its chances of doing serious damage are less.

The direct destruction of enemy aircraft is the most obvious purpose of antiaircraft guns, but this job is much easier for the fighters. For, to bring about the destruction of a 'plane with antiaircraft fire, the shell must burst within fifty to one hundred feet from the target. With light antiaircraft guns you must hit either the pilot, the engine or the control; and the fact that an aircraft can suffer a surprising amount of damage in other parts of its structure without being put out of action has been proved by the experience of our own pilots in action over enemy territory. Even if the shot is perfectly aimed and the fuse is accurately set to burst the shell at exactly the right place and moment, the aircraft only has to deviate from its course to a small extent to escape unharmed.

On the other hand, unless he is using dive-bombing methods, the pilot must fly on a straight and even course at a constant speed for at least half a minute if he is to drop his bombs accurately. When the aircraft is being engaged by antiaircraft guns the pilot has to decide whether to continue to fly straight, in which case he runs a serious risk of being hit. If, on the other hand, he "jinks" and takes avoiding action by altering his course and speed, then he ruins his bomb-aimer's chance of releasing his bombs accurately.

PART ONE

Another important function of AA guns is to indicate the sition of enemy aircraft to our own fighters. Often, when enemy 'plane is out of range, the guns fire one or two unds to burst as near as possible, simply to draw the hter's attention to the enemy.

There are two main types of heavy AA gun. The 4.5 ch, which hurls a high explosive shell weighing nearly lf a hundred-weight to a height of eight miles in fifty conds' time; and the 3.7 inch, which has almost as high a ceiling and a faster rate of fire, but a smaller shell. There are also some 3-inch guns from the last war, whose chief characteristic is a high rate of fire; these fire high explosive or shrapnel shell every three seconds, producing a mushroom growth of cotton-wool bursts.

Our light AA gun is the Bofors, which weighs two tons and fires anything up to 120 two-pound shells a minute to

*Extracted from ROOF OVER BRITAIN, *the Official Story of the A.A. Defences, 1939-1942*, by special permission.

Battle of Britain*

British Combine.

"Even sound locators . . . were really only capable of giving the height at which the enemy was travelling perhaps ten miles away from the Capital."

a height of 6,000 feet. The projectile explodes on impact.

The last-war Lewis gun has been surprisingly successful, mounted singly, or in twin or quadruple for greater fire power. It has brought down many low-flying raiders who sought by diving from cloud to surprise the defenses. The function of the Lewis guns is to hold off the bomber from low-level attack, or from vulnerable points all over the country.

At a "heavy" site there may be two, four, six or eight guns. The normal plan is a four-gun site run by a half-battery divided into two sections. The two sites may be several miles from each other.

The guns are spaced around the sides of the gun park, with the command post at the center. The command post is an oblong enclosure containing the predictor, the identification (or spotters') telescope, and the height-finder. It is in the charge of the Gun Position Officer (G.P.O.) who controls the firing of the guns, watches the effect of fire, and has the responsibility of identifying any doubtful 'planes that may be about. He has an assistant—usually an N.C.O., hereinafter referred to as G.P.O.A.—who acts as a human megaphone, relaying the G.P.O.'s orders to the guns: in action the G.P.O.A. is responsible for "fire discipline," for seeing that the correct drill is followed and no unnecessary ti... are run. Well-given orders make an extraordinary differen... to the number of rounds the guns manage to fire.

The Germans started the Battle of Britain in the Summ... of 1940 with attacks on convoys, and then went on t... harbors and dockyards. They bombed Chatham Dockyard... They delivered mass attacks on Portsmouth and Dover; they bombed Portland and Weymouth; and then, while still maintaining attacks on coastal towns, started a carefully-planned series of assaults against airfields.

The importance of AA guns in airfield defense is funda... mental. It is the guns which guard the 'planes during the vital moments when they are getting off the ground. Wherever in this war airfields have lacked adequate AA defenses, they have been unable to stay in action under any sustained attack. This was amply demonstrated in France and Crete. Nine of the airfields in South and South-east England came in for a battering, some of them twice in one day, and in a few instances airfields were attacked several times during a day.

The Battle of Britain was still in full swing when the first night attack was made on London on September 6th-7th, 1940. The daylight battles had begun to go against the

A vital link in British AA defenses: members of the Royal Observer Corps watch for enemy planes. Note the "mobile" switchboard.

British Official.

British Combine

Ancient equipment was used in the first days of the war.

mans, though the Luftwaffe still continued them. London at this time was not adequately defended. All r England there was still a shortage of antiaircraft guns, as we might be attacked anywhere, it was essential to cover to all our large cities. In the Thames Estuary a siderable concentration of antiaircraft guns had been t up, because many of the German daylight attacks e made *via* the Thames Estuary. But now it was essential the gun defense of London should be rapidly improved. thin twenty-four hours of the first night attack rein- ements from all over the country were on their way to don, and within forty-eight hours the guns in London been doubled.

The initial attacks on London were made on the East docks and caused very great havoc. It appeared as if the my thought that by concentrating on the East End, re there was a large and crowded population, he would e such panic as to endanger the Government's position, ot to force them to make peace. Thanks to the stubborn- , first of the people in the East End, and later of all ndoners, this indiscriminate bombing of the civilian pop- ion did not result in any serious loss of morale. At the e time, the very courage of the Londoner constituted an gation to defend him.

AA guns take a little time to be effective after they have ed into new positions. Telephone lines have to be laid, positions levelled and the warning system coördinated;

it was, therefore, disappointing that, though the reinforcements in guns by the second night of the battle were very considerable, there did not appear to be much more AA fire.

Before the war a very complicated system of barrages, depending primarily on sound locators for their information, had been organized. It was known as the "Fixed Azimuth" system. Special regiments had been trained in its use, and during the early stages of the war it had been improved very greatly. But, depending as it did on sound for its information, it was both inaccurate and cumbersome, and it could only produce a small volume of fire for the large number of guns.

During the nights of September 8th and 9th, Command and Divisional staffs visited gun sites and consulted together in Gun Operations Rooms in order to try and produce a more effective answer to the German night raids. But, though variations of all sorts were put into effect on the night of the 9th with a view to producing greater accuracy, everyone on the Command and Divisional staffs was most dissatisfied with the results. Early on the morning of the 10th, a conference was held at Command headquarters with the determination that, whatever had gone before, on that Wednesday night the enemy should be met with a barrage the like of which had never been seen or heard before. Great difficulties were still encountered. New methods of plane location were still in their infancy, and very few gun positions were equipped with them. Every sound lo-

Bren guns assisted the defense.

British Combine

One of the big AA guns set up in the dock area of London immediately after war was declared.

Acme

ers, which were in use with the "Fixed Azimuth" sys-
, were really only capable of giving the height at which
enemy was travelling perhaps ten miles away from the
pital; on the gun site itself there was no method of find-
out whether the height had changed.

After a very earnest consultation with scientists and ex-
ts of all sorts a meeting was called in London for 12:30
day. The Gun Position Officers (*i.e.*, the officers in
rge of firing the guns) from every site in London were
ected to attend, in addition to the Battery, Brigade and
isional Commanders. It was made a point of honor with
e G.P.Os.—many of them young officers who a few
nths before had been civilians—that, however handi-
pped they might be by shortage of equipment, they
uld put up such a barrage that night as, if it did nothing
e, would hearten the civilian population. All the schemes
the scientists could devise were explained to them; and
a final bit of advice they were told that, where all else
led, they would get a height sent to them from the Gun
erations Room and they must use their ears to estimate
ere the enemy was, and then barrage in front of them at
t height.

The result was remarkable. Punctually to time the Ger-
n bombers arrived—and were met by a roar of guns which
st have astonished them as much as it heartened the
ndoners. The enemy had been flying at 1,200 feet; as
n as the barrage opened they climbed to 22,000 feet.
ny turned back and at least nine 'planes were shot down
AA fire. Guns were in action all night; and at dawn, as
ammunition lorries moved into the sites to replenish the
precedented number of rounds which had been fired, the
nners were washing out the hot bores of their guns.

On that barrage, so crudely begun, has been built up the
st effective defense that all our scientific brains could
oduce. It has, moreover, become a pattern for the defense
t only of the cities of Great Britain, but of our fortresses
ad and the cities of other mighty adherents to the
ited Nations.

A week after the London barrages first flowered came the
k of the daylight attacks. Sunday, September 15th was
e of our fighter pilots' great days. The enemy attacked
th more than 500 'planes, at that time the largest force
launched in a single day's offensive, and lost at least
5 of them. Here is the antiaircraft side of the picture.

In the morning attack the guns could play little part be-
se of the presence of friendly fighters, though, of course,
y did their usual job in breaking up formations. Their
portunity came in the afternoon. At about 2:30 P.M. the
t of two great waves of enemy planes, each more than
0 strong, crossed the coast between Dover and Dungeness,
d thrust towards the Thames Estuary. Less than a hun-
d of them managed to elude the fighter net and reach
e southeastern outskirts of London. Eight minutes after
ssing the coast it was apparent that they were headed
ight for the Chatham guns. There was not long to wait.
tant thuds came in quick succession as the West Malling
ns engaged them. A curtain of white puffs, remote and
real, shrouded the toy-like specks. One of them fell away
iling black smoke. Now they could be identified through
oculars, about forty Dornier 215s in close arrowhead formation with their fighters, flying at 18,000 feet and 250 m.p.h.

The staff officers who provided the material for this story were watching from one of the old forts of Chatham, built to repel an earlier invasion which never came. The bombers came steadily on. The range shortened. From the sunlit town there was neither noise nor movement.

Then the outer gun stations went into action. The black bursts of the first salvoes sprang up among the leading bombers. The foremost Dornier swerved and dived away, a long plume of smoke trailing from its cockpit. From the engines of the second came thin wisps of white smoke that grew to a cloud. The formation turned away from the wall of bursts towards the Medway, climbing steadily and spreading widely like the fingers of an outstretched hand. One of them exploded with a direct hit, and a string of flaming fragments fell toward the river. More and more gun stations took up the action: there was an infernal crescendo of sound. For half a minute—how disproportionately short these significant battles are—the Dorniers pressed on in formation. Then, over Dartford, the close wedge was broken, and as the bombers scattered to avoid the bursting shells, Hurricanes and Spitfires, diving out of the sun, did execution.

Meanwhile to the southwest of Chatham a second wave of Heinkels was similarly faltering under intense gun-fire. Long before the Medway was reached its ranks had degenerated into a straggling line, widely dispersed.

For some minutes the cloudy sky above the Isle of Grain was the setting for high drama. The routed Dorniers of the first wave were staggering about in dogfights, the sky a wild medley of twisting aircraft. The white discs of parachutes hung in the air. Over Chatham the guns still held the stage and the Heinkels of the second wave rocked and jinked as they tried to run the gauntlet of the barking inner guns and the cruisers in the river. The leading Heinkel, caught in a salvo of 3.7-inch shells with its bomb-load still in the racks, blew to pieces at 19,000 feet. Almost at the same instant another Heinkel, hit in the cockpit and engines, fell flaming down towards Dartford Park. Thirty seconds later, over the Isle of Sheppey, the guns shot away the tail of a third machine which dived 5,000 feet into the sea and disappeared entirely. The guns had shot down three raiders in less than three minutes.

Not far away the Bofors gunners engaged a Dornier flying fast and low towards the sea. Repeated hits were scored; the target danced antics in the air; both engines caught fire, and he turned over and fell towards the sea. The air at this time was full of the crumps of bursting salvoes, the whine of falling shell splinters, the uproar of engines. And as the London batteries engaged, the din was multiplied.

A third wave of enemy approached, mainly Dorniers, at slightly over 16,000 feet. This was the last mass-formation attack of the day. It was not a mass formation for long. It was quickly scattered by the guns, and while out of range of the majority of batteries, the enemy turned away westward to meet the Nemesis of further fighter squadrons.

In the mopping-up actions, when the returning enemy came within range at all, two more Dorniers and a Messerschmitt 109 fell to the heavy guns and two Dorniers to the light AA batteries. It is not possible to detail all the inci-

dents of that crowded half-hour which, of course, seemed like hours of battle to the people who took part. A fugitive Dornier appeared out of the clouds over a Bofors position to be shot down in flames only 500 yards from the gun-pit. A Messerschmitt, its tail shot away at 15,000 feet, whined down to shatter itself in a rural churchyard. Another Dornier, already hit in the port engine, blundered over Chatham at 5,000 feet. As the 4.5-inch bursts sprang up beside it, pieces of wing and fuselage broke away from it. Four occupants baled out and were captured by cheering civilians who raced across the fields while the pilotless bomber, skimming the roof-tops, buried itself in a cottage garden.

Shortly before five o'clock the gunners of a cargo vessel steaming down the river hit a Heinkel with their twelve-pounder at 200 yards' range, and saw it crash into the mudflats on the Essex side of the river.

During these late engagements cloud almost completely covered the sky and visibility grew gradually worse. It was under these conditions that the last action of the day took place. At 5:15 P.M. a single Dornier 215 dived from low cloud, cracking away with its machine gun at the streets of an estuary town. At 3,000 feet a Bofors opened up and brought it down flaming—a red exclamation mark to close the story of a memorable day.

Antiaircraft Women

A highly successful experiment in our AA personnel has lately caught the public fancy more than most other developments of AA organization. This is the introduction of women to form mixed batteries. The first German plane to be shot down by a mixed battery crashed in the Newcastle area on December 8, 1941. When hit it was a couple of miles away and going out to sea. It was the first proof of a remarkable experiment, the operational significance of which has been obscured by its human interest as well as by a wide range of prejudice.

The first point to bear in mind about women on gun stations is that they are not trained for fun, but because the enemy is at the gates. It is not a whimsical experiment, but a necessary operational plan. The AA Command, in common with other services, has a fixed figure which is their man-power ceiling. There are not enough men to go round now, and as the AA defenses are almost continually increasing, the problem gets more and more difficult.

The first battery started training in spring, 1940. The A.T.S. members were picked from volunteers, and the men were newly joined recruits, the point being that men who had known no other army life would not find the atmosphere of a mixed battery so hysterically unorthodox. There was considerable anxiety as to how men and women would work together, but there need not have been. They took each other very much for granted; there was none of the musical-comedy-chorus atmosphere which had been anticipated, partly, no doubt, because such men and women had been working side by side in civilian life for years.

In a mixed battery, women drive and service the trucks, act as sentries and despatch riders, and, in fact, do everything except fire the guns.

In the first mixed battery, as in subsequent batteries, there were more than 200 women and nearly 200 men. Men officers and senior N.C.Os. from established batter combined with A.T.S. officers to form the nucleus of contr In a mixed battery there are eleven men officers and th A.T.S. officers. The women officers concentrate upon w fare and administration; they have nothing to do with t operational side. Operationally the A.T.S. are entirely und the control of male officers, though the latter have disciplinary powers except that of reporting the girl co cerned to her officer. This naturally produces complicatio but they have not proved insoluble.

Messing presented certain problems. The new life ma these young women very hungry, and the A.T.S. ration w smaller than the men's. Pending an official decision on t point great care was necessary to use the available food the best advantage. By mutual consent the rations for m and women were pooled and shared equally. The wom were well represented on the messing committees. Af a while appetites were stabilized, and diet was balanced provide food popular with both sexes. Special regard w paid to the women's need for fresh fruit, salads and m foods.

Women on the Searchlights

In April, 1941, a searchlight site was manned with A.T under experimental training to see whether they w capable of taking over from men. There were fifty-fo A.T.S., aged from 19 to 35, average age 24. The first th weeks were spent in preparing for the relatively hard, ope air life on a searchlight site. There was much drill and P.T and five route marches; also instruction in map readi anti-gas drill and aircraft recognition. Then came a mont technical training, at the end of which everyone passed t tests: the standard reached was higher than that of m men operating searchlights.

The Station was manned for the engagement of ene aircraft on eighteen nights. Enemy aircraft were only e gaged twice. There was no result on either night, becau the first was early in their training and the second time co ditions were not favorable. But the detachment was cal in action, and this calmness was again observed when ene aircraft were observed machine-gunning a neighboring si

The A.T.S. also went in for field engineering, filling a laying sandbags, digging and revetting emplacements. Th renovated and reconstructed field works on a derelict searc light site which was soon to be reoccupied. The work i volved shifting several tons of earth, revetting and pa making. By their tenacity of purpose they worked mu faster than men and it was particularly observed that th felt no undue fatigue or ill-effects of any sort.

They did guard duty, at first working in pairs by nig but soon getting used to being alone. The tour of duty sentries was two hours. They were armed with a pick hel and their main duties were to challenge visitors to the si to watch the sky for enemy aircraft and report them; to r port friendly aircraft in distress, and any flares seen; to i all aircraft flying in the neighborhood. Spirits were low first when the results of their work were not very obvi and when it was suggested that they could not stand winter. Spirits were highest when it was realized that scheme was a success.

(Part II will appear in the next issue of the Journal)

W gun crew's view of the FW 190 zooming past at zero feet elevation and 300 m.p.h. Both pictures on this page were taken from an AW position under direct attack.

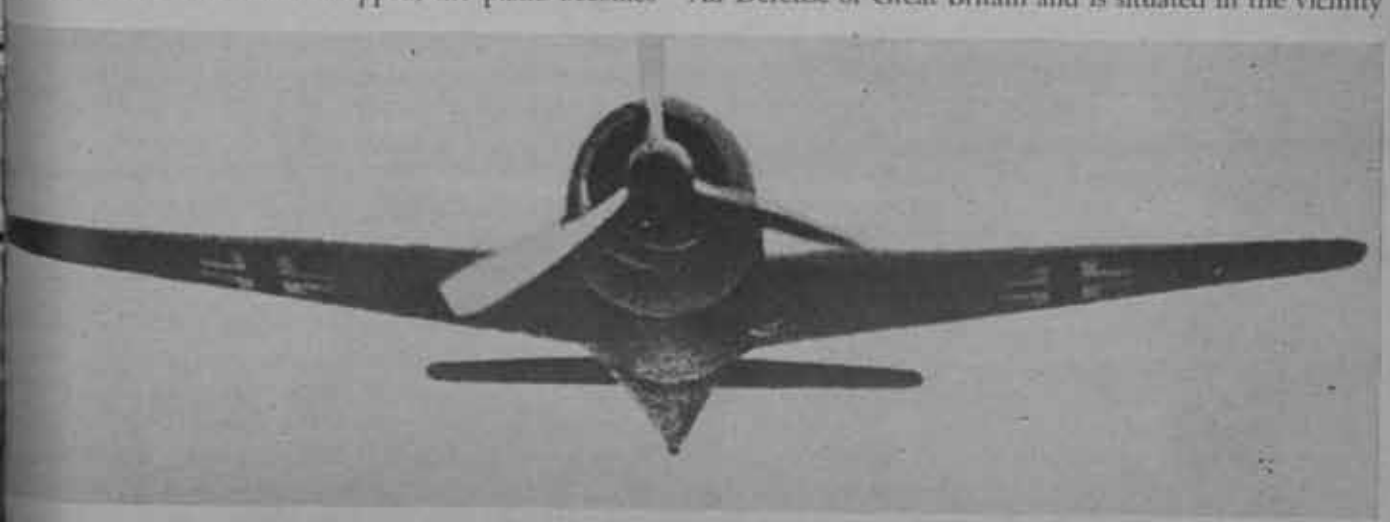
TIP AND RUN RAIDS

By Major M. R. Russell, Coast Artillery Corps

Study of German air raids over the United Kingdom ring this war indicates that the intensity and seriousness the attacks has steadily declined since the peak periods ring the Battle of Britain in 1940. This steady sliding off scale has been gratifying, to say the least, but does not an that the Hun is incapable of mounting another in- se offensive, though the amount of sustained effort is a ot point. However, in this article, it is proposed to point that the German offensive sorties against Great Britain the present moment, although infrequent, have intro- ed a serious problem, necessitating the maintenance of igilant, efficient, AA defense. This problem has been ed by the fighter-bomber with his sneak raiding methods. The fighter-bomber is nothing more than a fast fighter e carrying one or two bombs slung externally under the gs. The great speed of this type plane allows the pilot to mach the target of the moment at low altitude, and to ent a fleeting target to the AAA while dropping his mb, or bombs. The bombs dropped, the plane becomes a highly efficient fighter with all the fighter characteristics of high speed and extreme maneuverability. The Hun utilizes his Jabo (fighter-bomber), singly or in small groups of about four, to attack small towns on the outskirts of Great Britain—mainly seacoast towns with no particular military value—and it is necessary for various reasons (morale of civilian population being one) that AAA be available to fight back. The problem then is an AAA set-up extensive enough to provide cover for the whole of Great Britain and especially the South, Southeast and East which, being close to air bases in German-occupied country, get the majority of the bombs and machine guns because Jerry likes to sneak in and away as quickly as possible.

The sneak raiders tend to come streaking in at extremely low level, just skimming the wave tops so the AA defense falls mainly on the AW.

Consider then an AW gun position somewhere on the South or Southeast coast of Great Britain. It is a part of the Air Defense of Great Britain and is situated in the vicinity



FW 190 coming directly in at zero feet. This plane, carrying an externally-slung bomb, is a favorite enemy sneak raider

A British Bofors gun crew in action in the desert. Similar guns and crews are causing plenty of grief for sneak raiders in t United Kingdom.

of a small town or village of no immediate military importance. Though on the basis of purely military considerations, no air attack would be expected, still from the knowledge of recent German objectives, this particular village might well be the next scene of sneak raiders, slipping in, dropping a bomb each, circling inland, reappearing over the town to machine-gun the streets or any other opportune target, and then continuing on their way over the Channel and home. Such an action lasts only ten to twenty seconds, and it is apparent that the AW must utilize every possible second to engage the raiders successfully.

This fleeting raid of twenty seconds at the most may be, and probably is, the only opportunity for an AW gun to fire at the enemy over a period of weeks or months. It must be prepared at all times to engage instantly and effectively.

The succinct testimonial of a British soldier on a gun site somewhere in Great Britain illustrates this picture:

"I've waited nineteen months for this—nineteen months for two minutes' action. But it was worth it.

"The warning and the planes, twelve of them, appeared at the same time. The planes were about a mile away. All we could see were black outlines against the horizon, but we could identify them as Focke-Wulfs. That was the beginning of the two minutes.

"They were coming straight inshore, and I saw that they'd strike it a bit over a mile away from us. The question was, would they turn towards us, or away from us? That question was settled in a matter of seconds; they came towards us, not black any more, but grey now, and so clear that we could even see the crosses on the sides, and not more than seventy feet above the beach—a beau-

"And then we let them have it. We had time to get just four rounds—and then, damn it, they went behin house. We simply whipped the gun round. Out th came on the other side of the house and we let off more rounds. The first four were in front, and the two smacked home. Bits of debris jumped off the leadi plane, black smoke poured out of its nose, and she we in a long curve plump into the sea.

"And that was the end of the two minutes. Very sa factory!"

It must be apparent that the problem of dealing with t sneak raider is a difficult one but not insurmountab British AA units are coping with the problem and the hi percentage of losses inflicted upon the enemy in this ty engagement shows how successfully this is being done.

Note the following requisites in this problem, all which the British have well in hand:

(1) Early Warning system.
(2) Fire orders thoroughly understood by all pers nel.
(3) Firing units a perfectly drilled team capable reacting instantly to the situation.

The German thinks (or maybe "thought") that t sneak raider is useful in order to stretch the Air Defense the point where bombing and machine-gunning can be ried out at will. It has not proved so and the graph of G man offensive sorties against the United Kingdom contin to go down. Like a cornered rat trying to break out of trap, the Hun is trying desperately to devise a metho attack that is effective and cheap. The sneak raide neither.

Combat on Guadalcanal*

nstrument Sergeant's Story

By Sergeant Jacob I. Tennenbaum

Much has been written about the Navy, the Marines and Army Infantry, fighting and winning on Guadalcanal, hardly anything was said about the artillery which, in opinion, made the conquest possible. I was a noncom-ssioned officer in a Coast Artillery battery which was ered up there when the going was still tough and there-gained the honor of being the first Coast Artillery out-to engage the enemy in combat there. Before that, we been part of the harbor defense on one of our close-by es. We received only a week's warning and a twelve-ur march order.

Being Instrument Sergeant, I had to accompany our ptain and reconnaissance officer on a plane which ught us to Guadalcanal on October 29th, 1942, four days ad of our battery. Our outfit was the first to arrive there h major calibre guns and the second army unit on the and and was, therefore, attached to a Marine Defense talion. The commanding officer outlined the situation our mission which, of course, was mainly counter-bat-y fire, not coast defense. We immediately started to re-noitre our positions.

t might be interesting to know that, at the time of our val, the 105 howitzer was the largest gun employed on side while the enemy was in a position to shell Hender-airfield with guns estimated to be 6-inch rifles. This was firmed later when the wrecked guns were found, after upation of enemy territory.

We got a taste of these guns five minutes after our plane ded. This was our baptism of fire and it immediately nged the peaceful picture of wonderful coconut planta-s into a grim realization of war and blood.

With the boundless help of the Marine officers and their n, we picked our positions, established a 4,000 yard ergency base line for a possible coastal attack, and tied in with the local Marine Corps map, then the standard control map. This map was a reproduction of an aerial ograph which only covered the American held terri-of about ten square miles, comprising the airport and icinity. Since our targets were outside this area, it was essary for me to draw an approximate extension from a large scale map and tie it in with the grid coördinates he Marine map. This way, it was possible to obtain target gnments by coördinates and to determine approximate ges and azimuths.

Our battery arrived in the morning of November 1st and d to unload their entire equipment and the ship stores. pite of interruptions by two air raids, we had the ship un-ed by 1600 and one gun emplaced and ready to fire. At 0 we threw the first thirty shells over to the enemy to them a taste and a warning of things to come.

They did not have long to wait. Within the next two weeks, we expended over 1,000 rounds in various missions, including counter-battery, interdiction fire, barrages in infantry support and demolition fire. Our counter-battery was so effective that, within a few days, we either destroyed or forced the enemy guns to retreat. Henderson airfield was saved from shell-fire and planes began to operate on an all-day schedule. Our interdiction fire took place mostly at night, spaced at various time intervals and ranges so as to hinder any prediction, and was concentrated upon enemy supply lines and bivouac areas. We supported each major advance of the infantry, from the first battle of the Matanikau river to the last push which secured the enemy strongholds at Kokumbona and Tassoforanga and made the pacification of the entire island possible. As far as our demolition fire was concerned, we had a number of gun emplacements, gas dumps, a motorpool and bridges to our credit.

It goes without saying that we were subject to frequent bombing raids which, thanks to our perfect camouflage, we survived without damage or casualties. We had an S.O.P. to cease firing whenever enemy planes were overhead lest we give ourselves away.

Only once did we have to make an exception. The enemy used one of their raids to open up and silence one of our frontline field guns for which the above mentioned S.O.P. did not hold. We were called upon for counter-battery fire which we executed in the most peculiar manner. The planes were circling overhead and, whenever they had flown past we would toss a few rounds and then dive into our foxholes as soon as they came back. We were lucky not to get bombed and got the credit for neutralizing the enemy gun.

All of our demolition fire was done by means of aerial spotters and radio communication. We would be given an approximate grid location and the plane observer would correct our initial firing until we were on the target.

Less accurate was an improvised base system which we used for counter-battery fire. We had two forward observers with oriented azimuth instruments who would send us readings to enemy gunflashes and we would locate that point on the map which, of course, was anything but adequate for that purpose. Nevertheless, we must have been very effective since the enemy never fired from that position again. Either we put them out of action or they were afraid we would get the range on them.

One of the most successful missions took place on November 15th, the day between the two major naval battles. The night before, two Japanese cruisers shelled our positions, without success, as they were aiming at the airport and all their shots went way over. Since they had to get out of our plane range before dawn, they did not have time to linger. As it was, our planes got them the next morning. We found out later that their main purpose was to distract our attention from the fact that they had brought up five transports during the night. Our navy had them surrounded though, and the only thing they could do was beach them. These ships were detected early in the morning and dive bombers went into action, setting them aflame. The nearest one, just in

*The four authors of these accounts are now OCS candidates at the Artillery School, Fort Monroe.

we opened up and got on after ten rounds of sensing fire. With the eleventh round, we set her on fire and got about eighteen to twenty hits on her from then on. Two days later, she sank. It was the only one of the five ships that went to the bottom; the others just burnt out.

On December 7th, as a "Remember Pearl Harbor" day, all of our artillery had a field day and we alone fired about 500 rounds.

After the conquest of the Jap stronghold at Kokumbona, our troops advanced so fast that we could not reach the main objectives any longer, and we, therefore, moved two of our guns forward. We had no opportunity to fire at the enemy from there, though, as the Jap defenses collapsed a few days afterwards. Our last action took place on January 25th, 1943, and on February 9th, the fight was over.

We then established regular seacoast positions with two platoons whose fields of fire were fanned out with a 20° overlap, allowing us an actual field of fire of 100 degrees. Two months later, we were ordered up north to put our guns on Panama Mounts.

I left the island before this mission was completed, but my comrades are, as far as I know, still down there, doing a swell job, as always. I hope that the day when they, too, return, is not too far off.

A Gun Commander Writes

By Sergeant Michael J. Hack, Jr.

We arrived at Guadalcanal on the morning of November 2nd, 1942, disembarking with our four 155mm G.P.F's and unloading personnel, supplies and ammunition without casualties. By 1600 our first gun was emplaced and ready for action. Immediately we opened counter-battery fire against enemy artillery that had been shelling Henderson Field. By nightfall the enemy artillery was silenced. Within the next seven days and nights our battery fired over 1,000 rounds of H.E. ammunition, neutralizing enemy artillery, troop concentrations, bridges, gas dumps, and other strong points.

On the night of November 13th, 1942, our area and the airfield was subjected to a severe naval bombardment by two enemy heavy cruisers that sailed into the Sealark Channel. At dawn after they withdrew with our air force in chase, we crept out of our foxholes and placed two of our guns, No. 2 and No. 4 in position to command the Sealark area, in event of the cruisers' return. That left No. 1 and No. 3 guns to command the Kokumbona land area and the Point Cruz water area.

At dawn of November 15th, a large enemy task force attempted to land on the beach between Point Cruz and Point Esperance (this territory was still in enemy hands). Both No. 1 and No. 3 guns opened fire upon the nearest enemy transports that were just within range. Reports came in that the enemy transport was hit six times and was burning fiercely. Then fire was shifted to another transport which was also hit. The approximate ranges of these ships were over 19,000 yards. A total of ninety four rounds of ammunition (H.E.) were fired that morning from No. 1 gun accounting for the burning and sinking of one transport,

A.A. gun positions that were set up on the beach. The re of the task force was scattered by our navy and effectivel bombed by our airforce (who accounted for seven othe transports and auxiliary vessels). During this time we wer under enemy artillery fire which was ineffective but a bi nerve wracking. We were more worried by the enemy's in accuracy than accuracy. Continuous aerial observation were extremely helpful, and their reports were effective i keeping the efficiency of the gun crew at a peak. Thoug the temperature was easily above 100° F. the good new cheered the men to work on, tirelessly even though they ha no breakfast that morning. We may have had empty stom achs but we sure dished out a bellyful to the Japs.

The Mess Sergeant's Experiences

By Staff Sergeant Murray M. Gross

We dropped anchor off Guadalcanal early morning o November 2nd, 1942. Everything having been previousl arranged, the barges went overside first and then crew assigned to the different holds started filling the cargo net Half the men aboard went ashore to unload there. Ou orders were to have one gun emplaced and ready to fire a soon as possible. The work of the morning was interrupte twice by air alerts, but our planes went out to engage th Japs off-shore and they were unable to come in close enoug to bomb us. Each time Jap planes attacked, the ship woul pull anchor and steam for open water; this delayed us co siderably. At 1700 that afternoon, the ship was unloade This included fifty days rations for all soldiers on board three thousand rounds of 155mm ammunition, plus a lar quantity of .30 and .50 calibre cartridges.

Meanwhile our captain, executive officer, and instrumen sergeant, who had arrived by plane two days earlier, ha established a base line, picked gun positions, organized th communication setup, and established headquarters—a with the help of the marines to whom we were attached. A 1600 o'clock, November 2nd, one gun was reported ready t deliver fire, immediately opening on land targets. By mor ing of November 3rd, the four guns were emplaced, a cam set up, and field kitchen operating. Since we were not pr pared with local cover, we were fortunate in not being su jected to air attack that night. However, that was the on night for some weeks afterwards that we were not bombe

We did not know what we were stepping into, but w had heard some tall stories of snipers, infiltrations, bom ings and such, and though we were positioned only a m and one half from the front lines, the men behaved as if were just another maneuver problem. I'm sure though, th were all no less apprehensive than I was. Food supplies we at first very meagre and we drew hardly enough to feed t battery—mostly staples, such as meat and vegetable stew canned corn, canned milk, and coffee. The work accom plished was tremendous—everyone pitched in. In addit to firing almost every day and night, alternate seacoast p sitions had to be established nearby and ammunition stock at the emplacements. Two guns were shuttled back forth between these positions whenever necessary. Du

vember guns had to be camouflaged; protective parapets ilt around them, fox holes dug at guns and at camp area, mmand Post and plotting room dug in, battery head-rters, supply and kitchen set up, ammunition hauled in ntinuously, water hauled in, food and water delivered to different sections of the battery, and organizational prop-ty hauled in from the beachhead. Things were further plicated by insects and continuous rains. The mud de the roads almost impassable in places where traffic was viest, nor was it unusual to have two or three of our cks mired on the roads at the same time. The mud around e battery area was knee-deep in places and the water in r temporary camp area, at one time, was cot high.

During this time we delivered harassing fire almost ghtly, neutralizing enemy six-inch and antiaircraft bat-ies, driving the enemy guns back out of range of the air-t, destroying one enemy transport and damaging another. wards the end of November, one gun was moved up to e front lines near the Matanikau River to cover a reported 0mm Jap gun being emplaced near Kokumbona. Our n however, was never used, as the threat failed to ma-ialize. In January, all guns were moved up to this forward sition as the front lines were advanced so far that the r position was out of range. After this, we did not do any-re artillery firing. Bombings were frequent and in De-mber and January there were still threats of infiltrations, erefore we instigated local security measures, consisting a double apron barbed wire fence about our entire area, d posted guards at advantageous fence positions.

Additional equipment and replacements were requi-oned in the usual manner and signed for, but spot in-ntories were taken from time to time, to prevent unneces-y disposal of equipment and wastage of supplies. Morn-g Reports, Strength Reports, Ammunition and Casualty ports, Duty Roster and Sick Book Reports, were all part the paper work involved. Insurance and allotment corre-ndence were initiated by us and sent to our Battalion rsonnel Office at APO . . ., as were payrolls. We were id very irregularly, the first time being February 1st, after e were on the island four months, the next, March 1st, d when I left the island at the end of April, we had not been paid again. However, money was not a necessary or as there was nothing to spend it on.

Mail as a morale builder cannot be over-rated. Mail days re our important holidays at first, as they came all too and far between, but as the airfield became safer, there e mail deliveries about every day, or every other day, s field days when transports arrived.

Sunken pits were found by us to be impractical for storage powder, as rains and ground seepage filled them with ter. A coconut log enclosure roofed as well as possible, s our best bet. Two hundred rounds of ammunition were ed on racks within the parapets at each gun. Reserve plies were kept some distance away. There was a constant rtage of sand bags, therefore empty 55-gallon oil and drums were used by being cut open at one end and filled h sand. This served our purpose well, since the sand bags e not much good as they would deteriorate in a very rt time in the heavy rains and dampness. At least one rate section observation tower should be included. We nd that it was always necessary to build one, and ma-terials were not always available. A bulldozer attachment for the M1 artillery tractor would be a great help in building gun positions and roads to positions, and clearing ground for camp areas. Screening wire would be a good item to include in organizational supplies as it is not always available and is extremely necessary for kitchen and latrine and should be set up as soon as possible.

We found that a water pump and well head are very necessary pieces of equipment in the Pacific. Hauling drinking and cooking water is a constant problem and there is never sufficient washing water. A fairly stationary outfit, as coast artillery, can install showers in a short length of time. This washing and bathing source was the greatest morale builder we had.

As Seen by the Instrument Corporal

By Corporal Phillip Kaufman

On October 26, 1942 the battery to which I was assigned left for Guadalcanal. A week prior to our departure we had received orders to stand by to leave for a combat zone. Everything but the necessary equipment for the tactical functioning of the battery was crated and marked. We had learned that it is better to have well-made and tight-fitting crates due to the fact that upon our arrival overseas we found that the crates that we had made in the States had not wholly survived the rough handling that they had received. These crates were made upon arrival at our overseas station and were kept in good condition continuously. Upon receiving orders to move the guns, Range Section equipment and mess equipment were crated and transferred to the ship via Higgins boats. The personnel were also transferred in this manner. The B.C. and Instrument Sergeant formed the advance party, and left soon after us by plane to select positions and learn our tactical mission, leaving the Executive Officer in command of the Battery during our trip.

We had been overseas for a long period of time and we had had our fill of boredom. Despite the fact that we were going into action with the possibility that some of us might not come back, our morale was excellent. The food on board ship also tended to increase our morale. It was the best food that we had had during our stay overseas. We had Sing Fests and games during our trip to occupy our minds and we also had details to occupy our muscles. During our trip we stopped at an island and learned that the Captain and Instrument Sergeant had not been heard from. The Executive Officer, fearing that they might be lost, placed the assistant Executive Officer in command and went the rest of the trip by plane to attend to the duties of the B.C. in the event that he was lost. The remainder of the trip was uneventful outside of the fact that the ship's radio picked up the news that the Japs had advanced to the southern edge of Henderson Airfield. This news was disheartening, but rather than lose our morale, we made jokes about our very precarious position.

On November 2, 1942, the personnel were awakened and preparations were made to unload the boats. The

tions consisted of making the equipment which was to be unloaded accessible. The Higgins boats had been given a dry run the day before and they were in excellent working condition. We were split into two uneven groups, the larger group which was to go ashore and unload the Higgins boats and the smaller group which was to unload the ship itself. At approximately 0500 we caught our first glimpse of Guadalcanal—a huge black bulk bulging out of the water. At 0530 we stopped and the personnel started to unload via cargo nets into Higgins boats and then to the shore. As we approached the Island we could see coconut trees stretched along the beach. We had heard stories about Jap snipers and therefore didn't like the idea of walking into an area surrounded by coconut trees. At 0600 the supplies started coming ashore—all the equipment necessary for the proper functioning of troops in a combat zone. The guns and tractors were unloaded from the ship by cranes and hoisted over the side into Higgins boats which brought them ashore. The ship was unloaded at 1700 and left immediately. We had brought our own ammunition due to the fact that there was no ammunition of our caliber on the Island. Approximately 3,000 rounds were unloaded—and that is a man-size job. We were interrupted three times during the day by false air-raids. No one had to tell us twice to head for a foxhole of which there were quite a few in the immediate vicinity.

Upon landing we learned that the B.C. and Instrument Sergeant had been delayed but had arrived safely the day before. Positions had been selected for land firing and oriented. We were ordered to emplace our guns and deliver counter-battery fire against an enemy piece which had been shelling the airport. The first gun was emplaced and fired at 1500. The other guns of the Battery were in firing position by 2100 and also delivered fire against the same target. This was the first time that the Japs had been subjected to fire from a major caliber field piece and apparently they didn't like it, for very shortly after we opened fire the enemy ceased to shell the airport.

On November 13th at 0200 we were shelled by two heavy cruisers, attempting to weaken our defenses in preparation for a task force reported heading our way. These cruisers hung around too long, for the next day we heard that our planes had gone up in the morning in search of them. The planes found them and sunk one cruiser and damaged the other. November 15th we were ordered to take up seacoast positions and be prepared to deliver fire against this naval task force which was heading our way. Two guns were emplaced facing the sea and base end stations occupied. I was assigned to one of these base end stations late in the evening and finally got the station oriented as night fell. At approximately 0030 flashes could be seen between Cape Esperance and Savo Island and we knew that a sea battle was going on. The action lasted all night and the final results made us the victor. At 0600 aerial observation saw fou beached Jap transports stretched between Cape Esperanc and Kokumbona unloading troops and equipment. The inch naval guns manned by marines were ordered to fi upon the closest ship but could not accomplish this missio due to the range. We were then ordered to fire upon th target and did so using an observation station which wa fairly close to the gun-target line to correct our shots. W scored several hits and set the ship afire. We continued t fire until 1200. Due to the thick black smoke surroundin the target we were unable to ascertain the final dispositio of the target.

The next day personnel were noticed on board a ship un loading equipment. We were ordered to deliver fire on th target. Our assumption was that this was the same targ that we had fired on previously, the azimuth had change but we assumed that the target had drifted. We opened fi on this target with a maximum elevation and due to the larg probable error, were forced to fire quite a few rounds befor the target was disabled. Some of our shells landed on th beach and we learned that we had destroyed two Jap A gun positions. We also learned that our first target ha been sunk due to our fire. The other two transports ha been damaged by our airplanes. Shortly after this we wer ordered to emplace one of our guns near the front to offe resistance to an enemy 240mm Howitzer reported bein put into position to harass our installations. The positio selected for our gun was approximately 1,000 yards fro the front and we suffered mortar fire for a few days unt the enemy retreated out of our range. The enemy gun neve materialized and eventually the entire battery was brough up to this position and used as seacoast artillery with th usual seacoast methods. A base line was oriented and bas end stations selected. After moving up to this position w did not deliver fire any more due to the fact that the enem retreated too fast.

During the time of action on the Island we sunk on enemy transport and damaged another, destroyed enem field pieces which were found to be of 6-inch caliber, d stroyed several AA positions, destroyed a motor park an bivouac area which was occupied by the enemy and lai down barrages for the Infantry. This battery was cited b Lieutenant General Vandegrift, USMC, and the Secretar of the Navy for the part which it took in the action o Guadalcanal.

The food was Field Ration B with very little fresh mea It is a very monotonous diet even though supplemented b pie occasionally. However the food was good and ther usually was plenty of it.

We were very fortunate in that we had no serious casua ties. We did have one man who received the Purple Hear for being wounded in the right buttock by a fragment fro a bomb.

Antiaircraft Artillery with the Infantry Division

Lieutenant Colonel Roger W. Moore, Coast Artillery Corps

For a long time we have been making very comprehensive udies concerning the tactical use of antiaircraft artillery. these studies particular attention has been given to rear a defense and airdrome defense. Granted the tactics and chnique of such defenses are more involved due to the ater number of weapons and the variety of weapons ployed, still the application of tactical and technical prin-les in the rear area and at airdromes is simple in com-rison to the application of similar and additional prin-ples in the forward part of the combat zone.

Our resources or military tools must always be a prime sideration in the approach to a solution of a tactical prob-. In this discussion we will confine ourselves to the fantry division. The normal attachment to an infantry vision is one automatic weapons battalion, mobile. While s type of equipment has certain inherent weaknesses in a of movement it is the best which has been produced to e. Some authorities believe the self-propelled battalion uld be superior. In many respects this is true and it finitely is the proper attachment to an infantry division hich has been motorized.

The attachment of one automatic weapons battalion pro-les the division commander with thirty-two AA fire units h which to protect his division by augmentation of or-nic fires or otherwise. He also has the advice and council an AA specialist, the battalion commander, who serves as Special Staff Officer.

The normal mission for antiaircraft artillery is the protec-n of ground units and ground installations against air acks. The secondary mission is antimechanized or anti-val defense. A force commander should use his antiair-ft artillery on the job for which it was trained and uipped. Only after very careful consideration should he ign the secondary mission. Normally, antiaircraft weap-s engage ground targets only when the position itself is reatened.

Tactical Employment

Fighter aircraft constitutes the primary defense of the flank, and the first rôle of antiaircraft should therefore to protect fighter airdromes. Since, however, the mastery the air can never be complete, some antiaircraft artillery ll always be required for the defense of defiles, troop ncentrations, etc., against attacks by enemy aircraft that ve penetrated our fighter screen. This is the task of the ached automatic weapons battalion with the infantry di-ion. Airdromes will normally be defended by Corps and my antiaircraft units.

Antiaircraft artillery should provide a *reasonable* defense vital elements. It can be taken as an axiom that there ll never be enough antiaircraft artillery to provide ade-quate defense for all likely targets. It is better therefore to defend a few points properly than to spread one's resources thinly over many.

The force commander should set up priorities for antiair-craft defense. He should list all points which are vital to his mission and then arrange this list in the order of importance. This is a command responsibility but the antiaircraft battal-ion commander can influence the division commander in his capacity as advisor. To do this the antiaircraft battalion commander must be thoroughly familiar with the plan of operations of the division. In the event that guns as well as automatic weapons are employed with the division a separate list of priorities must be prepared for each.

The antiaircraft defense, both passive and active, must be coördinated and the antiaircraft battalion commander is the logical coördinator. In order properly to prepare an effective antiaircraft defense plan the AA battalion commander must be familiar with the division plans, both tactical and ad-ministrative.

Ground units should provide their own defense against low-flying combat aviation by passive means and the em-ployment of their own organic weapons.

Antiaircraft artillery must protect critical points on the line of march and in order to accomplish this antiaircraft units require priority on roads.

Antiaircraft artillery fire or cessation of fire must not dis-close our disposition or plan of maneuver.

Centralized control is used whenever possible.

Antiaircraft artillery fire units must be in place and ready to fire prior to the time of the expected attack.

Attack

During the preparation for and conduct of an attack, combat troops are particularly vulnerable to air attack and observation, not only due to their density of concentration but also because the enemy will use every effort to break up any great menace to his security. Therefore antiaircraft artillery is disposed to provide maximum protection to those elements whose destruction or disorganization would jeopar-dize the success of our mission.

In general, the Corps antiaircraft artillery guns protect from enemy *observation* those forces making the main ef-fort, the reserves, and the artillery which follows in close support. The defense is coördinated as much as possible. In the attack, combat elements are well forward, thus per-mitting AA guns to be pushed well up near the advanced batteries of divisional artillery. This provides better protec-tion for the combat elements and also avoids early displace-ment forward. Normally, these forward artillery batteries are not closer than 1000 yards in rear of the line of depar-ture, depending on disposition of the ground forces and the

terrain features (when within light artillery range AAA units must be defiladed). Depending on available AAA the following may be included in the AAA defense:

(1) Assault units, especially those making the main effort.
(2) Reserves, including their routes forward.
(3) Artillery areas.
(4) Command posts.
(5) Supply establishments and train bivouacs.
(6) Critical points on the line of communications.

These are not arranged in the order of priority. Remember the situation will dictate the priority. And also remember, we arrange our areas or establishments according to priority and start by giving an *adequate* defense to these priorities in order until our AAA means are exhausted.

AAA automatic weapons are disposed to protect those elements vulnerable to low-level or dive bombing, and strafing attacks.

These elements are:

(1) Forces engaged in the main effort.
(2) Reserves.
(3) Artillery areas.
(4) Command posts.
(5) Dumps, trains, and supply establishments.
(6) Other elements in rear of the combat troops in position.
(7) Critical points on the line of communications.

Forward AAA automatic weapons fire units are displaced as far forward as the situation will permit, but seldom, if ever, closer than 800 yards. These units should be defiladed and concealed from ground and air observation. Combat troops are largely responsible for their own protection but when in actual combat they will need additional automatic weapons protection.

Searchlights normally will be employed only in the rear part of the combat zone. Their mission is to illuminate targets for AAA guns and fighter aviation. Guns will seldom be employed in the forward part of the combat zone on missions other than to deny observation. High flying observation is extremely limited even on clear full-moon nights. So we might say that a searchlight will be a virtual stranger to the infantry division.

Marches

In the advance of large forces it may be necessary to decentralize control of the AAA defense to column commanders. This may seem to violate the principle of centralized control, however certain situations may dictate this violation. When the advance is begun, both tactical and administrative plans of the force must be known in detail before the AAA defense plan can be prepared. Army will usually prescribe the rear limit of the area which Corps AAA will protect. Army should protect elements in rear of this area and should be disposed to take over later the AAA defense of the Corps rear area. The Corps does likewise for its divisions.

Division installations are not normal or profitable targets for heavy or medium bombardment. To be a profitable target for medium or heavy high level bombardment the target should be at least 400 yards mean diameter. No d vision element or installation should ever be concentra in that area.

Security from air observation is one of the primary mar requirements. To do this properly we must keep hostile a craft so high or so far away that they cannot observe e fectively. For daylight moves Corps should provide g battery coverage to deny this observation. In the absen of this gun coverage, dispersal is the only answer to dayli moves. For night moves the automatic weapons battali of the division will deny observation if proper road dis pline is maintained. Passive measures are utilized to th maximum for protection from high altitude observati both day and night.

AA gun batteries under Corps or Army control prot critical localities along the route of march, such as riv crossings and mountain passes. They generally march wi the advance guard and are dropped off en route at points be defended. In keeping with the tactical principle th must be in position and ready to fire prior to the time of t expected attack.

Marching troops are vulnerable to attack from low-flyi bombardment and strafing attacks particularly at critic points along the route, such as bridges, embankments, v lages with narrow streets, passes through hills, or any a rangement where effective enemy attack may hinder th forward movement. Automatic weapons fire units will b sited at these critical points before the marching troops arri and will remain there until the column has cleared th critical point.

Entrucking and detrucking points are considered as cri cal points. Movement by bounds may be made by AA fire units protecting foot troops if a suitable road net exi but is not practical for protection of motorized columns. A fire units employed at critical points march with the advan guard and drop out at points selected to be defended.

Every man in the column using every available weapon a potential defender. Every rifle, automatic rifle, or machi gun with an AA mount must be used to engage the lo flying attacker. In addition each fourth truck of 2½ t capacity or larger has mounted on the top of its cab a .50 ca machine gun.

In deciding on critical points to be defended during advance through enemy territory, oblique aerial pho graphs will be of great value. Once the plan has been mad it will have to be rigidly adhered to. If, however, on arri at his allotted critical point the battery or platoon co mander considers it to be undeserving of special AA pr tection, he should at once report the fact to his battal commander.

In the advance, it may be advisable to keep some aut matic weapons fire units available at or near the head of th column, to deal with the unexpected. Much will depe on the amount of ground or air opposition to be expect The greater the air threat, and the less the ground thre the greater should be the amount of AAA kept forward.

Surprise

Surprise is as important a factor in AA defense as in a other form of warfare. We must both avoid being surpr and also strive to surprise the attacker.

Early warning is essential for AAA, both to avoid excessive strain on personnel and to ensure an early pick-up of the target. AA gunfire units are equipped with warning systems which almost eliminate the possibility of an attacker making an approach undetected.

Automatic weapons fire units without such equipment must depend on visual or audible pick-up of the target. Expensive warning systems are impractical for fast moving automatic weapons elements with the infantry division. Just as the defense lay-out will be influenced by the type of attack expected, so will the warning system be influenced. One AA unit in the Tunisian campaign used an improvised warning system along the logical avenues of approach. Battle experience had taught them that attacks would come along these avenues. This unit practically eliminated surprise.

In an effort to surprise the attacker we must employ subterfuge to its maximum. It will usually be obtained by good concealment, periodical changes of gun positions, and the withholding of fire till the last possible moment.

Defense

During the defense there is not the concentration of combat troops that occurs during the preparation for and conduct of the attack. Troops in the forward localities of the main battle position will be more thinly dispersed. The depositions will be extended in much greater depth and artillery will be further from the line of contact.

Elements requiring protection are:

(1) Troops in forward localities of the main battle position.
(2) Supporting artillery.
(3) Reserves and their routes forward.
(4) Command posts.
(5) Supply establishments.

Again these are not arranged in order of importance. The situation will dictate this order. However, supporting artillery and reserves will always be high on the list.

In a war of movement, the defense is in most cases, only a temporary interlude prior to the resumption of the attack or the beginning of the withdrawal. Seldom will the operation become static for long. Therefore, during this period the AA battalion commander is doubly busy conducting the present defense and also planning the AA defense to support the impending operation.

During the defense phase it is imperative that Corps provide guns to deny observation. The success of the impending operation, whether it be an attack or withdrawal depends to a large extent on denying the enemy information of the plan. Aerial reconnaissance can be expected on a large scale when any change in operations is probable.

During the defense the enemy will endeavor to knock out our artillery. Experience has taught that on the defense artillery plays a major rôle in breaking up enemy attacks. Therefore, artillery in position will be a prime target for hostile aviation, and consequently must be given AAA protection.

An active defense calls for counterattacks. To accomplish a successful counterattack, reserves must move to position for attack unobserved and unmolested. Consequently, reserves and their routes of approach must be covered by both an AA gun and automatic weapons defense. If a gun defense is lacking, movement is restricted to the hours of darkness.

Bivouacs and Assembly Areas

The infantry division in bivouac will depend to a large extent on dispersal and concealment for defense against hostile air observation and air attack. We might think it difficult to hide from 10,000 to 15,000 troops and from 1200 to 1800 vehicles. But it is not as difficult as it might seem.

In late maneuvers, during one phase, an Armored Division remained in concealed bivouac for three days unlocated by the opposing force. The opposing force knew the general location of this bivouac but continued air reconnaissance failed to locate the bivouac area exactly. This armored division contained more personnel than the infantry division and over twice as many vehicles.

Automatic weapons fire units will be used to augment the fires and extend the defense provided by the organic weapons of the assembling troops in order to provide an "area defense" where possible.

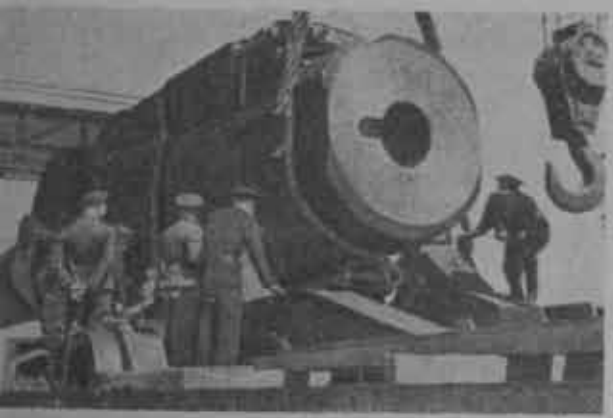
Where the size of the area involved or lack of weapons in the hands of the troops requires it, priorities will be established among the various elements in the area and automatic weapons fire units will be disposed in protection of individual high priority objectives.

Conclusion

In conclusion, a few words of advice to the battalion commander who finds his battalion attached to an infantry division. You have a dual function. You command a battalion of highly trained specialists—a vital cog in the war machine—and as such you are a commander responsible for the proper tactical, technical, and administrative handling of your command. Your other function is that of a special staff officer. You are the adviser to the division commander and his expert on AA matters. You have been especially trained and are responsible that by your advice you guarantee your battalion is employed properly and to the best advantage. To do this you must be constantly abreast of the situation and be thoroughly familiar with the division plan of operations, both tactical and administrational.

INVASION

In late 1940 and in 1941, the shore o Europe nearest England was calle "The Invasion Coast." Once again th Invasion Coast is in the news, but th direction of invasion has reverse



These two pictures, from an Axis magazine, are said to be of preparations along the northern Mediterranean coast.

International News Photo

The source of this picture is not known, but it purports to represent a concrete and steel fort the Germans have built on the French coast of the Channel.

→

International News Photo

COAST

The "neutral source" which provided this picture calls it "One of the giant anti-invasion guns on the Atlantic coast of German occupied Europe." The piece is believed to be a 690mm howitzer of relatively short range, since the light construction of the barrel would seem to preclude high powder pressures.

Press Association Photo

…d this one is very much inland—a unit in the west wall of Germany.

News of the Day Newsreel, from International

→

…e Axis magazine describes this as a fortifi…ation on the French coast, used as an obser…tion post and machine gun emplacement. …ote the thickness of the overhead cover.

International News Photo

←

Controlled Spotting

The Frazer Trainer

By Captain Harlan W. Wandersee and Lieutenant Richard F. Wood
Coast Artillery Corps

In the training of personnel for the various sections of an antiaircraft battery, it has always been possible for an enterprising C.O. to bring every man, by advance training, to a high level of proved proficiency—every man save those all-important cogs at the 0_1 and 0_2 stations, the "spotters."

Upon the accuracy and speed of these observers depend the corrections which can convert misses into hits. Some rate spotters second only to the stereoscopic height finder observer in importance. Yet their training has been dependent for the most part upon brief moments of observation during infrequent service practices. A lot of high-priced ammunition has had to be shot into the sky for their expensive educations. And even then, it has been impossible to *test* the accuracy of a particular spotter, in the sense that stereoscopic readers can be tested against known datum points, and other members of the antiaircraft team perfected in frequent dummy drill and tracking missions.

The above dilemma bothered our Regimental Commander so much that when we came to him with tentative designs for a spotting trainer that would really simulate bursts around a plane in flight, to scale as to speed of target and angle of deviation, he ordered, "Fly to Shangri-la for parts if you have to, but get that spotting trainer built!"

The Colonel's command was a figure of speech, of course, because when you're on overseas duty you don't whistle back to the States every time you run into a "strategic materials" snag. You construct with what you've g you improvise and convert, and after some hours of sawi crimping, and soldering, you've turned nails, copper line, blasting wire, and whatnot into a precision device which a "basic" can be turned into a "spotter" in a sing afternoon.

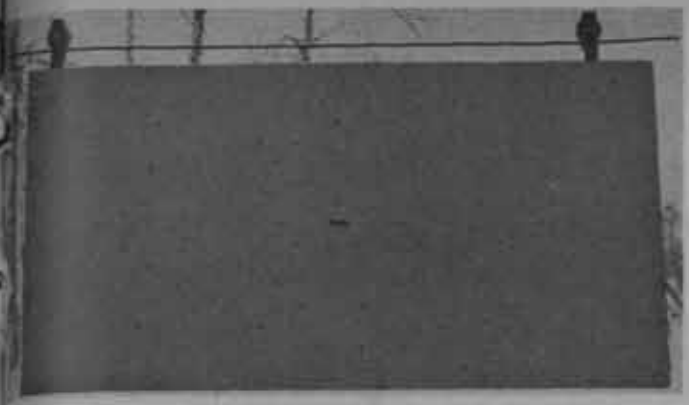
If this sounds over-optimistic, add up the actual numb of bursts which your best observer has had the opportuni to view through the B.C. scope or M1 spotting scope sin he joined your record section; then suppose that you c flash a series of bursts on a moving board in any patte you choose as fast and as long as your spotter will call the back to you, and you will see how the sporadic training previous months can be compressed into a few hours.

As a matter of record, we took a private who had nev read deviations before, and let him read one afternoon overs and shorts on our spotting board. Next day we to him out on actual calibration fire, put him on the 0_2 statio and his readings were identical to those of a two-year read The board trains in both vertical and lateral deviations, course.

Here is how it works:

A board eight feet long and four feet wide (the dime sions can be of your own choosing to fit your material) h sixty flashlight bulbs installed in holes bored in its fac These bulbs are spaced at intervals of three inches or mu

The complete setup for training a spotting crew. Azimuth and elevation readers and recorders are not present at this outdo drill, as they can practice separately on their instruments without "bursts." Several other scopes are training on the spotti board simultaneously with the B.C. scope shown here.



The face of the spotting board.

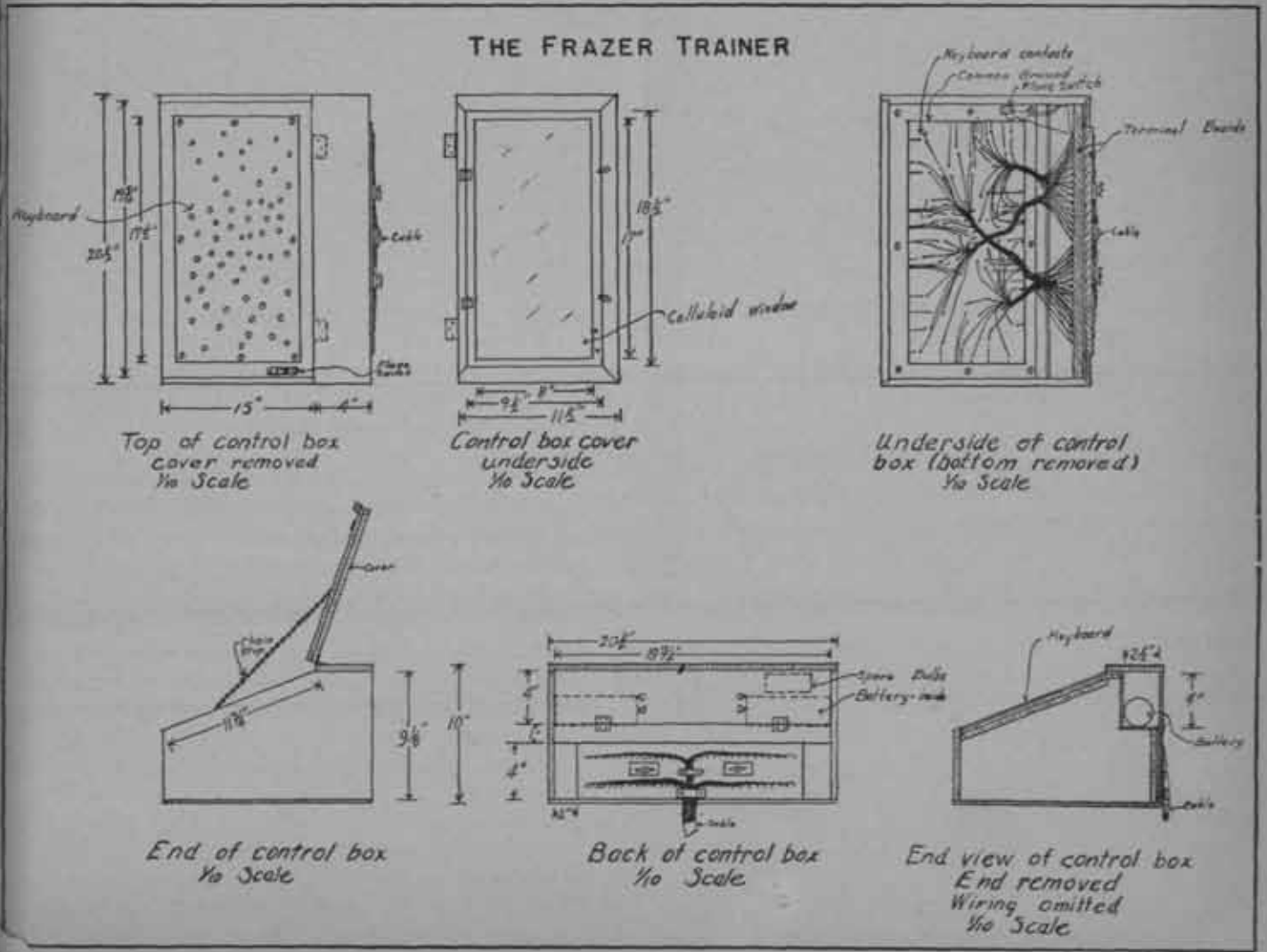
ples of three inches, laterally and vertically from the ighted "airplane" slot in the center. With the sixty dif- erent points of burst, all at scaled distances from the air- plane, a virtually infinite number of combination patterns an be flashed.

The spotting board is connected by a sixty-lead cable to a small keyboard, on which the instructor can punch out any desired burst or pattern of bursts. The numbered buttons he presses are recorded on a pad, for comparison with the recorded readings called off by the observer to the rear.

Exactly 250 feet away from the spotting board, the spotters are stationed with their scope. By the mil rule, one foot on the spotting board would subtend an angular deviation of one mil at 1000 feet. For convenience, this scale is reduced to one-fourth; thus three inches on the board, viewed from 250 feet, reads a deviation of exactly one mil. By moving the spotters back to 500 feet from the board, half-mil deviations are seen, and by staggering the distance on each side of an even multiple of 250 feet, observers can be trained to read fractions of mils to the closest mil without hesitation.

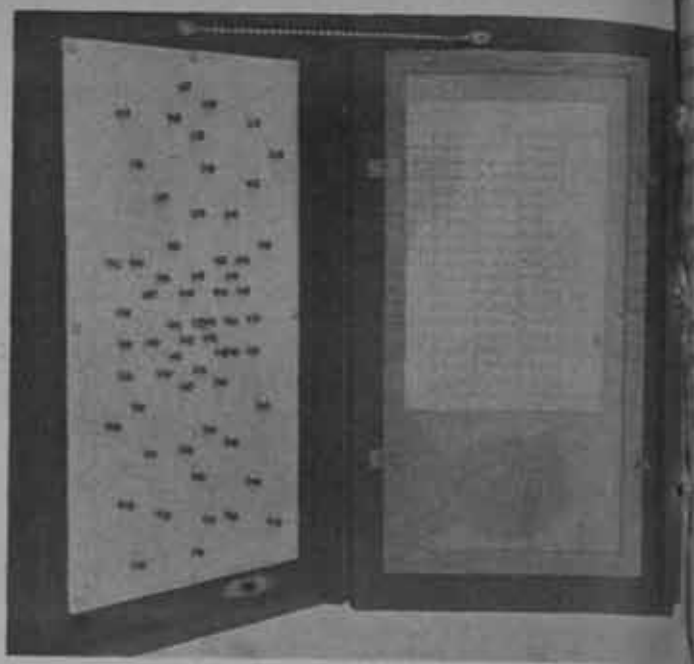
The difficulty of picking up the tiny flashlight-bulb "bursts" is, of course, also adjustable by varying the distance of the observer from the spotting board. One advantage of the electric-light bursts, by the way, is that they train the spotter to read a flash, and not a puff of smoke. The increase of realism over the clumsy old "cotton ball on a stick" method is readily apparent.

To move plane and bursts along through the field of observation together, the entire eight-foot board is hung on two pulley wheels from a steel cable 100 feet long. The cable is stretched taut, so that movement of the plane simulates level flight. Any desired speed of plane, to scale for any chosen range, can be simulated by scooting the board along the steel cable fast or slow. The sixty-lead electric cable to the bulb connections on the back of the board must, of course, be long enough to allow movement of the board. We used common blasting wire for this cable. Be-



cause we couldn't get enough for an electric cable seventy feet long, and to reduce line-drop from our two dry cells, we limited the electric cable to twenty-two feet; thus the keyboard-puncher must walk along close to the spotting board as it moves across the field.

The observer traverses through 400 mils in azimuth to follow the airplane and the bursts as the spotting board is drawn along the entire 100 feet of the field. He is, in fact, trained in all the manipulations of his instrument which he will be required to perform in spotting of actual gun fire, with the single exception of variable epsilon settings. This discrepancy could be partially compensated for by running the spotting board along steel cables of several varying heights off the ground. (A diving course could be created by letting the board slide down along a slanting cable.) We have not found it worthwhile to string more than the one level-course cable, however, as the spotter quickly applies his skill to a new angular height when that element is introduced in actual fire.



The control keyboard is a reduced replica of the arrangement of bursts on the spotting board, so that the operator can produce bursts as fast and as widely dispersed as they would appear in the sky. A chart in the cover lists the correct deviations to be read when each button is depressed.

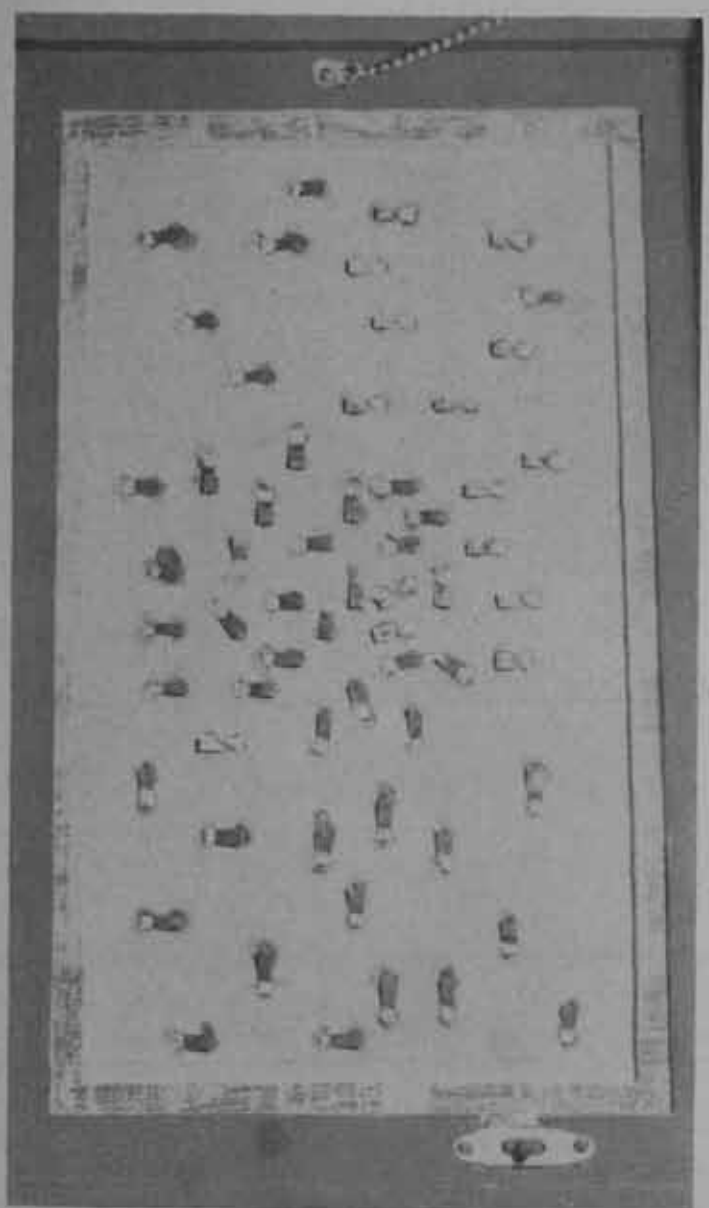
The board we built accommodates lateral deviations of sixteen mils right or left, and eight mils above or below. This fails to train observers to spot, in their scopes, the very wide deviations often encountered from 0_z. By that very fault, however, the limited width of the board forces the observing crew to realize that wide bursts must be "sensed" and some report more helpful than "out of scope" transmitted to the battery.

With the naked-eye spotting developed from combat experience for greater speed of fire adjustment, there are no out-of-scope bursts, and the observer needs training, rather, in quick and reasonably accurate estimation. The Frazer Trainer can be of some value in developing skill at calling the rough-and-ready "fork" type of deviations, at least in the initial stages where an angular-deviation grill is employed. For estimating yardages in the sky, though, there is probably no training comparable to looking up into the sky itself.

Some of the improvisations to which we resorted to construct our spotting board out of materials at hand are illustrated in the photographs and scale drawings which accompany this article. Typical examples: we stripped the three steel strands out of the center of field telephone wire, and wound this steel into tiny coil springs to go under the buttons on the burst-keyboard. Copper tubing from the oil line of a caterpillar tractor made admirable conductor-cappings, and shim steel from truck bearings worked for contact springs.

The spotting board itself we painted flat-finish grey. In some climates, blue might be a closer imitation of predictable sky conditions.

Two enlisted men did the wiring, a painstaking job. The accompanying diagrams illustrate their method of utilizing the available space on the back of the spotting board for the maze of wires and the sixty socket connections. The

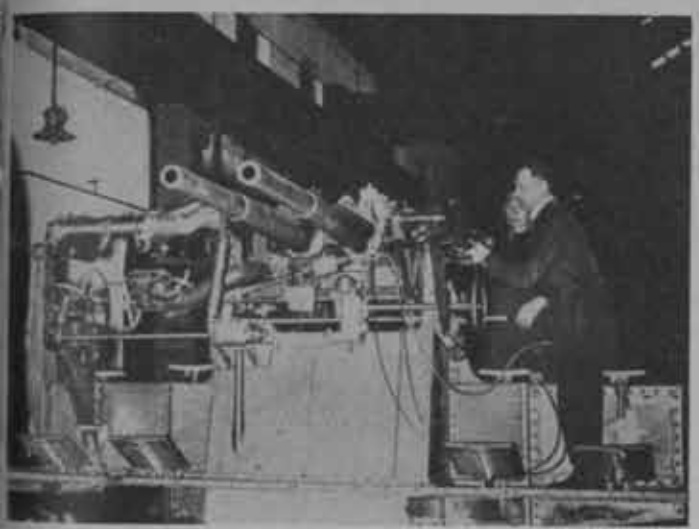


Inner panel of the control board shows use of shim steel for contacts. The operator's keyboard fits over this, and the nails used for keys depress the spring strips.

chanical necessities of wiring made our eight by four foot
e of board a practical minimum to accommodate the
mber of lights installed. Our "bursts," by the way, are
ntered most closely around the target "airplane," and thin
toward the periphery of the board, much as they should
efficient fire. There are several "line shots," both hori-
ntal and vertical. The airplane is separately illuminated
en we want to simulate night spotting.

After training and testing of individual spotters, we
nd that the Frazer Trainer is equally useful for the co-
dinated training of an entire visual record section. With
perienced trackers from the range section, we set up our
" and "0$_x$" stations in miniature, and actually turned out
competent record section in five hours. By training an
extra crew of observers, and drilling them on the spotting board, we can have two complete record sections, each man's readings listed in black and white on a deviation chart. Come details, transfers, cadres, or casualties, we can depend on a full section ready for action, and we can train still more replacements in a hurry.

That's no small load off the harried mind of a Battery Commander. And the Colonel can direct the larger tactical employment of his regiment, in the knowledge that the fire of his guns will pinch in closer to the target with every shot. His spotters are no longer the unknown quantity in the firing equation. They are trained and tested, on a piece of equipment that any ingenious battery carpenter can build.



British Combine.

Twin 6-pounder British coastal guns, recently taken off the "secret" list, reveal that Axis light forces attempting a landing on the British coast would have found the going rather difficult. The range of the guns is about 5,000 yards, with high muzzle velocities. The guns are the same caliber as Britain's famed antitank guns.

Wide World

Another view of the Twin-sixes. In most locations the turrets had 360° traverse. In one attack on the harbor at Valetta, Malta, these vicious, quick-firing guns destroyed eight torpedo boats and five E-boats.

AA Guns and the Fire Direction Center

By Lieutenant Colonel Burgo D. Gill, Coast Artillery Corps

As far as his weapons are concerned, any soldier knows their primary missions. However, is he using them to the greatest possible advantage? Is there a method of using these weapons that may have been overlooked?

Asking the above questions, we find listed in training publications that AA guns are also used as antitank, anti-motor torpedo boat, and assault weapons. In addition, can they be used in conjunction with, and reinforcing the Field Artillery? If so, how should we go about it?

There is probably no doubt in any antiaircrafter's mind but that he can fire a battery of his own guns against land targets, mobile and armored, or fixed, or to cover an area in which are located enemy troops. However, this conception applies to a single battery firing individually. How can it be used in conjunction with FA batteries and even with other AA batteries?

By tying in AA batteries with the Field Artillery's fire direction centers, and establishing liaison and communications between an AACP and an FDC, this can easily be accomplished.

At this point, I am fully cognizant that many AA officers have worried in the past, as well as right now, that someone, or something will arise that will take AA away from its primary and vital mission of defense against enemy aircraft. Although AA guns may be assigned a secondary mission other than air defense, such as acting as assault weapons, nothing should interfere with their primary mission. We must remember that such missions are dealt with in each front, or sector, by the commanding officer of the local ground forces concerned. So, let me quickly add that I am not opening that academic argument as far as tactical thought is concerned, and am sticking to the technical possibilities of how to use AA guns in conjunction with FA batteries.

As we all know, an FA FDC is the means by which batteries of FA are quickly tied in together by rapid survey, and registration fires recorded so that an FDC can easily order one, or many batteries to open up on a single target simultaneously. In other words, a target can be smothered within a few moments by a concentration of many batteries instead of letting one battery do it over a much longer period of time with consequent loss of surprise. Most of us are familiar with this system as it was worked in Bataan and on other fronts.

Because of specialized training of FA personnel in rapid means of survey, trained liaison personnel, an ample number of forward observers with their communication facilities, etc., it is better for the AA to tie in with the FA than vice versa.

Incidentally, this is being attempted in one known sector although the various units have not been in combat. I don't know if it has been attempted on other fronts or not. But, from reading the sparse reports that are available on the Bataan campaign, I am led to suspect strongly that some sort of a tie-up was made.

Before going into more specific details as to how this could be accomplished, the question might arise under what conditions can it be used? Obviously, in any operation, whether attack or defense, it can be used where there is a great preponderance of friendly planes. In one observed place, a sector had an equal number of AA and FA batteries, while in an adjacent sector, the AA batteries greatly outnumbered the FA. Obviously, this latter situation was an ideal one for AA guns to be prepared to open fire in a few seconds against any type of enemy target, as well as being able to switch from one type of fire to another just as promptly.

The points to be covered in preparation for AA and FA units to be able to tie in with each other are listed below. Naturally, the order in which they are listed might be varied. Some apply to training and indoctrination. Others might be considered separately in each special situation:

1. Commands and observation terms used jointly are reduced to a minimum.

2. Each battery is kept informed of all artillery battery locations.

3. Communication and liaison are established between AACP's and FDC's. The same applies to the local ground force commander's CP and the AACP.

4. AACP keeps the GFC and FDC's informed of type of ammunition on hand, and type of fires it can perform. For example, some AA batteries might only have AP shell for AT work, and "time" shell for use against planes and also "time" shell against personnel in the open. Another AA battery might have its AA shells fitted with a percussion element in the fuze and can consequently use it as percussion shell against practically all types of ground targets. For such purposes the AA needs terrestrial range tables.

5. AA guns must not be used frequently enough against land targets to cause them to overheat. Two AA guns can blast out as much ammunition in a few moments as can four FA guns. The other two guns can be kept "cool" for AA targets.

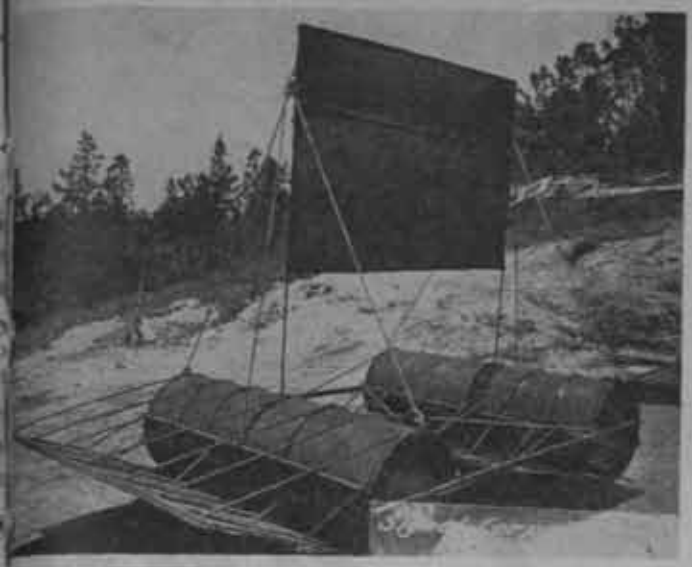
6. AA batteries must be ready to use an FA observer's spots against unseen targets.

7. The AA and FA keep each other mutually informed of all survey data, OP's, etc.

8. AA batteries (at least for a starter) in an emergency should be used solely for concentrations rather than for the more complicated methods of fire such as rolling barrages, etc.

The drill in preparation for this work is quite simple. Gunners should be taught to lay guns in azimuth and elevation by means of the "clocks," or the gunner's quadrant can be used for elevation. This keeps the height finder and director crew free to get on any enemy plane. Of course, they can be used to transmit data as well.

Periodic drills should be held to keep in training as well as to test the system and to keep it up to date and to check for faults.



Anti-MTB Target

By Major Charles L. Beaudry, Coast Artillery Corps

Because no standardized high speed target was furnished s for a recent anti-motor torpedo boat shoot at this mid-ulantic station, it was therefore necessary for us to design nd construct our own.

In view of the fact that this was to be a high speed target towed by a radio remote controlled speedboat) it was nitially decided to design the target so that it would skip ver the water in aquaplane fashion rather than plow hrough it.

Our first model was made of wood. In its assembly it as necessary to use bolts throughout rather than nails or crews because of the high strains later imposed on it. Even us assembled the target proved to be too light in construc-on and consequently tore apart. Furthermore it was not uoyant enough to support its own weight when floating.

A second design attempted to correct the deficiencies of he original. The floating section consisted of four fifty-five-allon gasoline drums welded together with reinforcing ars. No bolts, screws, or nails were used anywhere. The arget frame itself, four feet six inches by four feet, was emovable—its two supports fitted into two pipes each elded between a pair of drums. The target was braced terally with one-half inch rope. A trial run of this model roved unsatisfactory also. In spite of the fact that the tow-ne pull came from under the front pair of drums (which ould tend to lift them up) the weight of the towline itself ounteracted any lifting tendency of the drums. Conse-uently the target plowed through the water and the drag as comparatively high which of course made the speed ower.

Finally, skids were attached on the under side as shown in the photographs and this time it rode beautifully over the surface (see figures 1 and 2). It did not skid laterally even on turns due mostly to the fact that the towrope (175 yards) was almost entirely submerged and consequently had a stabilizing effect on the target. Putting a fin on the bottom of the target was considered but later ruled out. A fin would probably help but not enough to warrant bother-ing with it.

The towrope used was three-quarter inch in diameter and proved to be entirely adequate. At rest the target sank about five inches in the seawater.

The target has since been used for 155mm sub-caliber firing and has proved very satisfactory.

Finally, it should be emphasized how important it was to make the target very strong and well braced (see figure 1). The target has taken some terrific punishment but electric welding, apparently almost a necessity, was used through-out and stood up perfectly.

EDITOR'S NOTE: *Two sets of plans for a high speed target recently have been distributed by the Coast Artillery Board to each harbor defense. Where materials and equipment for this type of target are available, use of these plans is desirable. In the absence of the necessary tools and materials it will be necessary to improvise targets to take advantage of the local situation. In the case of the target described in this article, it will be necessary to determine by experimentation the size of the components and the angle at which the plane surfaces should intersect the horizontal.*

AA Friend and

A British "40" crew at Bengasi clean their gun between courses "for record" against the real thing—German planes.

Printed from a negative taken from a German prisoner, this photo of a German 88mm position seems to indicate antitank action.

troops use an Italian Breda
AA gun in North Africa.
Indian Army Photo

Foe

itish, German, and Italian
indicate a variance in con-
ption and execution, but
y all have one main pur-
se—to "Keep 'Em Falling."

Neutral sources passed on this picture of German flak cars on tracks near Berlin. An "educated guess" describes them as 105mm pieces.
Acme Photo

mmies in the
an Desert with
3.7 AA gun.

Captured German 20mm
AA/AT gun on halftrack.

The Russians ca
tured this 105m
AA gun from th
Germans.
Ruffoto

Combat Conditioning

By Major Vincent Usera, Coast Artillery Corps

Modern warfare has been so touted as being mechanized and so much emphasis has been placed on the mechanization necessary to make our arms effective that sometimes we lose sight of the fact that the training of the human being and his conditioning to the shock of battle is still the predominant factor in all military training. Without this training and this conditioning, the machine or the weapon is tactically useless.

The military profession is unique in one respect. Whereas in any other profession—medicine, law, engineering, etc.—one practices continuously, in our profession the opportunity to practice it is limited to approximately once or twice every twenty-five years. As a consequence, the mistakes made in the last war are the basis for the study of the next war. Although certain tactical laws remain immutable, their applications can and do change radically from one period to another. Witness the present conflict as an example. All of our battles have had the same general pattern: strafing and bombing by aircraft, intense artillery preparation, shock action by tanks, rifle fire and machine gun fire by the infantry as it advances over the ground made passable by the action of the above named arms, and finally, the assault with cold steel when the enemy's fire has been nullified. Is there any basic difference between the way the Roman Legions assaulted and took a position with cold steel and the taking of the same position by the modern infantryman armed with a knife at the end of his rifle? The preparation (application) is different, but the ultimate (the actual assault) is essentially the same.

How does this affect us—the Antiaircraft Artillery? It affects us in the sense that we can profit by the use of our imagination and the experiences of those who have been in action so far—both our enemies and our allies. There are certain things that we can be confident can or will happen during the normal action of an antiaircraft battery or platoon. If we can make provisions during our training to take care of these contingencies, then we at least minimize the unforeseen which inevitably crops up in battle. Let us review some of these eventualities which we can foresee:

1. We may suffer casualties among our key men.
2. We may be subjected to strafing and bombing attacks.
3. We may be subjected to artillery fire by the enemy.
4. We may be subjected to hostile small arms fire.
5. We may have our guns or equipment destroyed, or communications severed.
6. We may be subjected to chemical warfare agents.

Having these possibilities (probabilities) present, let us inject the antidote in our training. Training could be divided into two major phases, (1) That phase during which technical proficiency in the use of our machines and equipment is taught, and (2) That phase of training in which the technical proficiency is practiced at an accelerated tempo under circumstances as nearly true to battle as possible. The first phase is already being practiced adequately by all AA units but the second phase is the one I wish to emphasize here.

The writer has been a professional soldier for fourteen years and has served as an officer in several campaigns with the U. S. Marine Corps and with the Spanish Army in the recent Civil War. I have fought in nearly every type of engagement from bush warfare to open warfare and street fighting. I have been taught many lessons that I had read in manuals but ignored to practice in training and I have learned the value of small details so often ignored until losses and casualties reminded me forcibly of their importance.

Let us consider a method of attacking our proposed second phase in training. When your men have begun to show that they are suitably proficient in artillery drill, accelerate the tempo and inject a new interest by suggesting to them that you are going to simulate casualties in the battery and that during the ensuing drill you will touch certain men in the gun sections who will drop out of their positions and that you want to see that position filled as soon as possible so that no loss of time or efficiency will be noted. The first time you do this you will note that there is a tendency for the gun commander to take over the position. This should be discouraged except when there is no one else to fill in. The gun commander has a definite and very important position. He is the only one who in actual combat will be directly in control and his job is to see that the gun crew functions as a team. By taking over the position of a casualty he fills a lesser position and loses control and command of his crew. Remember that the dispersion of guns made necessary by combat makes it impossible for you to supervise all guns personally at the same time. In any drill bear in mind the tactical function of your noncoms and make them accept their responsibilities—you will appreciate their importance once you get into battle.

The next thing that you would notice in actual combat would be the tendency of other members of the gun crew to aid their wounded comrade. This is a natural civilized impulse but it *must* be curbed. The minute that one man stops his job to help a wounded man, the natural gregariousness of human beings takes effect and before you know it, you have two or three men leaving their gun to help a friend. These two men (or more) are needed at the gun and they should not be allowed to leave it under any circumstances without orders. That is what you want "first aid" men for and they alone should be allowed to pick up wounded. If no "first aid" men are available, as often happens, use someone from your overhead who has been specifically designated as a stretcher bearer and make him practice this task during drill. Practice is essential for stretcher bearers. Theirs is a job requiring courage and strength, and the choice of any weakling will hamper the functioning of your unit in combat. If there are sufficient stretcher bearers to have one pair in each gun position all the better. If there

not enough, make each gun commander responsible for ling by telephone or by shouting for "First Aid." Remem- that wounded men should not be left near other men any length of time. It does not help morale, and they l be in the way.

You may be subjected to strafing and bombing attacks so us practice what to do during these attacks. Recently, I in command of an Automatic Weapons Battalion in erto Rico and I was surprised at how easy it was to get Air Corps to agree to practice strafing or "Buzzing" our itions. The pilots of pursuit planes need the practice in fing and our men need the practice in tracking a high ed target and estimating ranges, so there should be little ficulty in obtaining coöperation. In spite of some casual- gun crews under direct head-on attack by diving planes st be trained to continue firing at such targets coming ectly on the gun position as long as fire can be delivered. ring bombing attacks by high flying bombers out of ch of AW guns the gunners should be taught to take er on command.

You may be subjected to hostile artillery fire so why not ulate this by the use of sound tracks now in existence ich simulate battle noises, and by the judicious use of all charges placed near the gun positions beforehand and eferably without the knowledge of the men on the guns. paper bag filled with a mixture of Fullers Earth and lamp k in which one-quarter of a stick of dynamite has been erted will serve the purpose. This should be barely cov- d with earth. The startling effects obtained by the use of se mediums is in keeping with War Department direc- s and the ensuing fright sustained by the men will de- ht and interest them and give you valuable tips on men o may be easily panicked. The second or third time this tagem is worked on the men they will show obvious im- vement and the officers and noncoms will also learn the essity for the use of arm and whistle signals to supple- nt the voice above the noise of combat. When you set off ur hidden charges simulating hostile artillery fire near ur position, try getting your men into slit trenches or hind your parapets as expeditiously as possible. Remem- that the more confusing and shocking you can make the *ternal* circumstances without allowing it to create con- ion in your ranks, the nearer to actual combat will the ulated situation be and the more fun *and* training will ur men obtain therefrom. Since external confusion and parent disorder are the everpresent attributes of combat, *them into your training!*

You may be subjected to enemy small arms fire, so train ur men to take positions as infantrymen in case the enemy penetrated to within rifle or machine gun range of you. ctice taking these positions so that each man knows what position would be and which of them, if any, remain on gun. Show them what their place is when they have revert to infantry formations from their artillery position. blanks and firecrackers or any noise making device to ulate small arms fire being suddenly placed on them. ulate casualties and all the possibilities your mind can ure but *make it realistic*. After the exercise hold a criti- and explain the defects shown up. If these things are with enthusiasm and energy they can not help but est the men. Our men are intelligent and quick to recognize that you are interested in preserving their lives and their reaction will be commensurate with the effort you put forth.

One of your guns might be put out of action. Your director might be hit. Your communication setup might be wrecked. Have you practiced what you would do if one of your guns were suddenly a casualty? What will you do with the men? What method of fire control will you use if your director is put out of action and your gun battery is left without this valuable aid? Think it over—and practice it. Have your men check and fix a telephone or find and splice a broken wire. Check on it and see how fast and how well they can do it. Cut a wire some time during a practice and see if they can tell what is wrong. Have you taught men to act as messengers and made them repeat verbal orders to you so that they will not get a garbled message to the recipient? Try putting twenty men in a ring ten paces apart and whisper a three sentence order to the nearest one then have him pass it on in a whisper to the next one. You will be surprised at the message you get back when it has made the complete circle. Do all of your men know how to destroy a gun or other equipment should it be necessary to abandon it? Show them how and simulate such procedures.

You may be attacked with chemical warfare agents so practice getting into gas masks immediately and using your equipment with masks on. Let your officers and noncoms learn to give orders with masks on. Make sure that they can carry on while using masks and once in a while get some tear gas from your nearest Chemical Warfare Unit and give the gas alarm and use the tear gas a second later. See how many "casualties" you get and note how these will be prepared in the future, if they don't know when you are fooling and when you are not. This will teach them the value of alertness and will make the usual dull gas drill interesting because of its realism.

These are but a few of the things that can be done to improve our training methods and make training an interesting and vital thing for the men and officers. There are still others which will soon become available. Make sure that every man in your command has a chance to go through the "Infiltration Course" where live machine gun fire is delivered over his head while he crawls 100 yards. Let every man become accustomed to the angry whine of bullets over his head. This is a valuable conditioning aid and should be used by every soldier in our army. An infiltration course may be made out of any rifle range (200 yards) and some .30 cal. machine guns arranged to fire at least 30 inches from the ground over the heads of the advancing men.

Your men may be taught the reality of actual combat with small arms by the use of the same infiltration course. Twenty or thirty small silhouette targets representing prone enemies can be placed at five-yard intervals across a line roughly coinciding with the butts. A squad, or platoon, (depending on the size of the butts) can be deployed in front 400 or 500 yards away with the platoon scouts ahead. All men are to be armed with rifle and twenty rounds of ball ammunition. The group is advanced until the scouts can see the silhouettes when they begin fire on these. The officer and the noncoms then maneuver their units to form on the line of scouts and bring fire to bear on the targets. Each individual soldier would set his sights on the fir-

order given by his noncoms or obtained from the adjacent man. This would necessitate noncoms and officers learning what and how fire orders are given by infantry commanders. When the fire from all elements had been brought to bear on the targets the platoon leader (or squad leader) would advance his unit by individual elements in small rushes of five to ten yards while the remainder of the unit kept up its fire on the targets. Scoring could be computed at the end of the exercise on the percentage of hits per rounds fired. Great realism can be added by the use of several machine guns firing over the heads of the troops from their rear. Since it takes some time for soldiers to learn from where the fire is coming the effect would be one of being fired at. I have personally used this exercise many times for teaching fire and movement to troops about to go to the front and the men were invariably impressed and taught a great deal. This, of course, necessitates short periods of instruction in the elements of the fire order (1: range estimation, 2: target designation, 3: fire order) and a "dry run" to insure safety.

Make sure that your men and your noncommissioned officers learn and practice minor infantry tactics: combat principles in attack and defense, use of cover and concealment, and musketry. Can your officers and noncoms give orders properly using the five paragraph form? Try them out by the use of sand table problems involving simple problems for the platoon or squad. The Infantry School at Fort Benning, Georgia, can send you any number of such problems already made up—problems which will train you and your men to think clearly and quickly. Always bear in mind the possibility that some day you might be faced with the necessity of destroying your guns and taking up infantry battle formations to repel an enemy or to retire. Are you sure that your men could do that now without confusion or panic? Infantry tactics are not composed of just extended order drill—it is not as simple as that. Who becomes the combat scout if you are attacking? How is contact between units maintained? How is a retirement effected by a company (battery)? Think it over—teach your men, and then *practice* it.

One very important factor must be everpresent in each officer's mind during any and all training. Training which is done in a lackadaisical fashion where the instructor shows in every action that he is not "responsible" for making his men go through "this silly stuff" is actually harmful. Our manuals were written by men who have been in action a are based on the actual experiences of many years and y *will find it out when you go into battle.* Put every bit nervous energy into your actions and voice when you actually going through any exercise. It is up to you to m it interesting and vital. Forget that you were a civilian used to dealing with things that were "reasonable." battle the "unreasonable" is what usually wins. What reasonable about John Paul Jones' refusal to surren when his ship was sinking? Was it "reasonable" for W ington to attack Trenton with his cold, ragged soldiers Christmas Eve? Is it reasonable to tell a man to go into act where his life is forfeit at any moment? Then don't be af to work your men hard while training. You *can not* ma them as tired as they will be during their first action. Wh any unit has been trained strenuously and effectiv in spite of their growls and beefs, there comes a time wh it achieves its unity—its teamwork—and they begin to bo of their organization and their leaders. When that time rives they have acquired the priceless military ingredien "esprit de corps."

In closing, I should like to remind my readers of one exorable truth. Disciplined troops, strong in the knowled of their unity and cohesion, show the value of training the crisis of battle. When it seems that men can not sta any more and events happen with mad, appalling violen what can make men hold in the face of death? Passion loyalty or excitement can lead them to it, but only fanatici or long arduous practice can *hold* them to it. Habit result from training is the one force that overcomes fear a causes men, wounded, dazed, and shattered in numbers continue doing their jobs with reasonable efficiency.

Every man who has sought for courage in war for ye finds it shaken by fear. How much more so does an ordin man when in the chaos of battle all the props of the wo he has known are knocked out from under him! Men a not brave in battle from disdain of fear but from heat emotion or habit born of discipline. Habit alone will s tain men in the face of death. Habit gives freedom fr the terrible fear that disaster destroys man's mental uni Habit will ensure the correct reaction when the faculties temporarily paralyzed. Habit, which is the result-name discipline, organization, and training, is the strongest p chological factor in the military arsenal.

A democracy demands effective military leadership, which is a good guarantee for efficiency. The trouble arises, not from the condemnation of leaders, but from the effort to dictate or influence the strategical employment of our forces without knowledge of the logistical requirements, or of the various military situations and the world of international relationships involved.—GENERAL GEORGE C. MARSHALL.

Spotting by Sensing for Rapid Fire Batteries

By Lieutenant Colonel F. G. Tandy, Coast Artillery Corps

Spotters are apt to be a neglected element of the range ation. This is not as true in batteries commanded by ex- enced artillerymen who have learned by bitter experi- ce that no shoot can be better than the spotters, as it is h many of our younger officers who have not had the portunity to learn by experience. The things which were ned by years of experience in the old days must now be ned by young officers in days or months.

The Commanding Officer of a battery using the bracket- g method of fire adjustment cannot afford to forget that must have spotters until just before his target practice d then assign men left over from other details. Even en early assigned as spotters normally get very little actual perience in seeing shots fall. Subcaliber firing often gives e spotter an erroneous idea of his ability to call overs and orts due to the short range and exaggerated height of e relation to that range.

As a consequence of the above conditions, the spotter may l shots with opposite sensing to their actual fall—that is may call an over a short or vice versa, or he may call a when a hit is not actually obtained. In either case the ult in trial fire, and sometimes in fire for effect, is dis- rous. This may easily result in the center of impact being ved from within the hitting area to a point outside the ting area by these spotting errors. A study of fire con- ons will show that B.C. corrections (successive 1 fork rections) in trial fire are often three or four times the nal ballistic correction entered before firing. Therefore, matter how good the data which comes out originally, it pt to be completely upset and overshadowed by one or e spotting errors in trial fire. Further, having once ered fire for effect with erroneous assumptions the keting chart will correct so slowly that it will take at four rounds and probably eight or more to overcome initial error in spotting.

Battery Commanders must be sure that they have the spotting system obtainable under existing conditions errain, communications, shortage of personnel, etc. The ference between axial, unilateral and flank spotting po- ns must be understood. A spotting position on the flank l not give the results expected if the gun-target spotter le is not seventy-five degrees or more. It is believed that never possible a bilateral system should be used both for get practice and for combat and a spotting board always d to give readings of overs and shorts. This seems to be safest system when ranges are 10,000 yards or more. n with a bilateral system men should be trained as l spotters for an emergency spotting system.

Good men must be picked for spotters. The fact that a says he has been spotting for months or years doesn't ssarily mean he is good. A spotter should (1) have excellent eyesight. (2) He should be level-headed, one of your best men. Next train your men thoroughly, both regular spotters and alternates in both normal and emergency methods. Test your men and if they don't respond to training change about, but by all means acquire good men and trained men.

The average man thinks he can call overs and shorts at any range whether the target and splash are lined up or not and he will try to prove it by guessing and spoiling a shoot, if he doesn't understand that it is no disgrace to call doubtfuls when he is not absolutely certain. Further, he must learn that he should call a hit only when the pieces of the target fly in the air. A simple way to show a man is to set a salt shaker on a table across the room, have him place his eye at table level and look through a small hole in a cardboard to take away any depth perception he may have at so short a distance. Use a small piece of cotton on a string to simulate the splash and place a shield between him and your hand holding the string so he cannot see which way you move your hand, then drop the cotton so that splash and salt shaker are not in line with his eye and have him call short, over or doubtful. By telling him true readings you should be able to convince him that he cannot correctly sense a splash unless the target and some part of the splash are in line, If you cannot convince him you had better put him in a position where he will use his back instead of his head.

Training bilateral spotters should present no special difficulty. A small target on a two by four towed on the ground at a short distance from an azimuth instrument and a piece of cotton on a string will give an opportunity for a man to read deviations through an instrument. Proficiency is easily attained by this simple method as practice in reading the splash scale in the instrument is all that is required.

The next step is to train on subcaliber splashes. The usual height of site of a station and the short range of subcaliber give a man a chance to see a definite vertical angle between the target and the splash, a condition which is not present at service ranges. Therefore, it is a good plan to place the spotter as near water level as possible on the beach in front of the battery. This will simulate service conditions. Again weed out men who show a tendency to guess sensings. There should never be a mistake in sensing. If a spotter is not sure then it must be called doubtful. It is much better to fire another round on the same correction than to adjust an erroneous spotting. It will help the spotters to hold the rate of fire down in trial fire and if more than one gun is being fired to be sure shots are staggered so as to give the spotter a chance to complete one reading before the next splash appears.

The last step is service firing. Spotters should be present

at every service practice for there is no substitute for experience. Service firings are the nearest thing we have to combat.

If a definite training routine is followed you will have a battery which can shoot and shoot well. Any systematic error can be eliminated by good spotting and proper use of the rules of adjustment.

A spotter is trained to do one thing, to sense splashes so that adjustments can be made. He probably feels that the entire battery is waiting for him to say something. Our job is to get him to say the correct thing. He must understand that a sensing of doubtful is not a reflection on his ability, but an indication that the other elements of the battery are at fault in not securing line shots. However, it is sometimes possible to sense a shot properly which falls in front of the target by waiting a few seconds and seeing which side of the spray the target passes. With experience he should learn such expedients. He must understand that he is either sure that a shot is over or short or it is a doubtful. It is dangerous to call a hit, therefore a good rule is to prohibit a hit being called unless the pieces fly from the ship or the pyramidal target flies to pieces. Adjustment will not be upset by using this rule, while on the other hand many a short is mistak for a hit and the whole shoot spoiled.

It is well also to mention several facts which could b classified as development of spotters after the initial stage An analysis of past firings will show that if firing data carefully prepared the first trial salvo will fall less than fo probable errors from the target and that even though no a justment is made a few hits will be secured. A battery com mander must be prepared to open fire for effect in comb without any trial fire phase.

In these days of rapidly moving targets there is no time f trial fire. Therefore, spotters should be trained for spee they must not be the ones who control our rate of fire. Th first hit is what counts. Fire cannot be held up for spottin data to come in. Adjustments can be made even though a the shots are not sensed, as long as those sensed are spott correctly. Remember a "doubtful" is treated the same as "lost" in fire adjustment. The speedy, highly maneuverab present-day target may cause dispersion to become o friend instead of our enemy if the rate of fire is rapid an initial firing data carefully prepared. Training spotters pa dividends in speed and accuracy.

Determination and Use of Certain Statistical Averages in Seacoast Artillery Fire Control

By the Coast Artillery Board

The use of statistical averages in the determination of errors is an important aid in the evaluation of the effectiveness of seacoast artillery fire control equipment and the ability or state of training of its operators. These averages provide a basis on which to compare personnel and equipment in the effort to derive maximum benefit from training and target practices. Thorough analysis of the results of training and target practice courses may be used to demonstrate to operators and observers the good and bad features of their functioning as members of the range section. In addition to furnishing an incentive to improve operating skill, such analysis also tends to develop precise fire control techniques and generally helps to improve the *esprit* of everyone concerned with the fire control problem by creating confidence in the standard equipment.

The averages to be considered here are the mean deviation, the instrumental deviation, and the mean accidental error. The deviations, errors, and their averages are defined as follows:

DEVIATION is the observed or calculated value minus the corresponding true value. Individual DEVIATIONS are assigned the proper algebraic sign.

MEAN DEVIATION is the arithmetical (taken without regard to sign) sum of the DEVIATIONS, divided by the number of observations. The MEAN DEVIATION is always positive. This is the criterion of the over-all performance of the instrument and the individual.

INSTRUMENTAL OR SYSTEMATIC DEVIATION is the algebraic sum of the DEVIATIONS divided by the number of observations. The INSTRUMENTAL DEVIATION may be plus or minus, depending on the nature of the individual DEVIATIONS. It is affected by orientation errors and any bias in the equipment itself, as well as by the systematic effect of any habits or tendencies of the operator to function in an abnormal manner. The INSTRUMENTAL DEVIATION corresponds to the distance of the center of impact from the target.

ACCIDENTAL ERROR is the individual DEVIATION minus the INSTRUMENTAL DEVIATION, taken with regard to sign. These values may be either plus or minus. The accidental error corresponds to the armament error.

MEAN ACCIDENTAL ERROR is the arithmetical (without regard to sign) sum of the ACCIDENTAL ERRORS divided by the number of observations. This value is either positive or zero. The MEAN ACCIDENTAL ERROR is a criterion of the steadiness and consistency of the observations, and the skill of the operator on the particular instrument used. It corresponds to the mean or average armament error.

Analysis of orientation data as well as tracking data can be made by the method described in the example that follows. In the case of analysis of orientation data the comparison is made with true survey data. Tracking data may be analyzed by comparison with data taken simultaneously with the most accurate fire control system available, usually a suitable horizontal base system manned by a skilled range section. A system employing two camera theodolites at the ends of a suitable baseline also can be used as a standard of comparison, particularly in the case of data on high speed targets at close ranges.

Consider the problem of determining the accuracy of any type of single station fire control system, such as a DPF, SCRF, or other single station set. Both the single station system and an appropriate visual horizontal base system are used to track the target and data are recorded on all instruments simultaneously on a convenient time interval. The shorter the time interval the more data can be obtained for plotting curves of DEVIATIONS versus time to obtain the period of the errors. Having obtained the basic data, the statistical analysis may be accomplished either by mathematical computation, using logarithms and computing machines, if available; or directly by plotting the horizontal base data on a standard plotting board. The former method is the more accurate, of course, but the latter may suffice in many instances. The recorded base-end data are plotted on the battery plotting board in the usual manner. Then, using the arm and station center for the single station system, the azimuth and range from the single station are read for all the points plotted from the base-end data. The two sets of data for the single station can be compared as shown, and the errors determined.

The relocated base-end station data, or true values, and the single station data, or observed values, for azimuth and range are entered side by side as shown in the example. The true values are then subtracted individually from the observed values. If the observed value exceeds the true value a plus sign is assigned to the deviation. If the observed value is less than the true value a minus sign is assigned to the deviation. It will be noted that while the accidental errors are taken with regard to sign, the sign of the individual errors is not considered in determining the mean accidental error. If the accidental errors are added with regard to sign, the result will be zero if no decimal places have been dropped in the calculations and should be close to zero otherwise. This affords a convenient check of the calculations of the various averages. It is customary to indicate the sign of the individual accidental errors since this information is often used in other ways. A graph of accidental errors plotted against time, range or azimuth will frequently reveal data that will assist in reducing the magnitude of the errors. Some errors may vary with range or azimuth and in some cases a definite period of repetition of errors may occur, so that the graph may even resemble a sine curve.

EXAMPLE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Firing No.	True Range (yards)	Observed Range (yards)	Deviation Col. (2) Minus Col. (1) (yards)	Accidental Error Col. (3) Minus Instrumental Deviation (yards)	True Azimuth (degrees)	Observed Azimuth (degrees)	Deviation Col. (5) Minus Col. (6) (degrees)	Accidental Error Col. (7) Minus Instrumental Deviation (degrees)
1	19000	19000	+00	+30	269.51	269.86	+.35	+.14
2	19083	19130	+47	+17	269.71	269.93	+.22	+.07
3	19189	19234	+45	+15	269.94	270.10	+.16	+.01
4	19238	19278	+40	+10	270.15	270.25	+.10	−.05
5	19284	19325	+41	+11	270.37	270.28	−.11	−.26
6	19332	19370	+38	+8	270.55	270.31	−.24	−.39
7	19381	19430	+37	+7	270.70	270.43	−.27	−.42
8	19440	19470	+30	0	270.84	270.63	−.21	−.36
9	19504	19530	+26	−4	270.98	270.84	−.14	−.29
10	19576	19592	+16	−14	271.19	271.05	−.04	−.19
11	19654	19610	−44	−74	271.23	271.28	+.05	−.10
12	19730	19700	−30	−60	271.38	271.59	+.21	+.00
13	19811	19835	+24	−6	271.53	271.81	+.28	+.13
14	19900	19935	+35	+5	271.68	271.98	+.31	+.16
15	20000	20040	+40	+10	271.84	272.17	+.33	+.18
16	20093	20135	+42	+12	271.99	272.30	+.31	+.16
17	20173	20215	+42	+12	272.08	272.35	+.27	+.12
18	20254	20300	+46	+16	272.34	272.75	+.41	+.26
19	20330	20386	+56	+26	272.50	272.82	+.32	+.17
20	20401	20455	+54	+24	272.64	272.93	+.29	+.14
20	Plus total		+700	+200	Plus total		+4.00	+2.89
	Minus total		−100	−200	Minus total		−1.00	−1.11
	Algebraic Total		+600	0	Algebraic Total		+3.00	0
	Arithmetic Total		800	400	Arithmetic Total		5.00	4.00

INSTRUMENTAL DEVIATION = $\frac{+600}{20}$ = +30 yards
MEAN DEVIATION = $\frac{800}{20}$ = 40 yards
MEAN ACCIDENTAL ERROR = $\frac{400}{20}$ = 20 yards

INSTRUMENTAL DEVIATION = $\frac{+3.00}{20}$ = +.15°
MEAN DEVIATION = $\frac{5.00}{20}$ = .25°
MEAN ACCIDENTAL ERROR = $\frac{4.00}{20}$ = .21°

In order to secure the statistical averages desired, the following procedure is carried out:

1. Add up the plus deviations.
2. Add up the minus deviations.
3. Add the totals obtained in 1 and 2 algebraically. Di vide this by the total number of observations includi any zero deviations that may have occurred. The r sulting number (minus or plus, as the case may b is the INSTRUMENTAL DEVIATION.
4. Add the totals obtained in 1 and 2 above (disregardi sign) and divide by the number of observations. Th resulting average is called the MEAN DEVIATIO and has no sign. It is to be noted that under no c cumstances can the INSTRUMENTAL DEVI TION exceed the MEAN DEVIATION.
5. In order to obtain the MEAN ACCIDENTAL E ROR, subtract the INSTRUMENTAL DEVI TION algebraically (*considering sign*) from each i *dividual deviation*. When this has been done for a deviations (including any zero deviation), add up a these accidental errors, *disregarding* sign, and divi by the total number of readings. The resulting nu ber, which has no sign, is the MEAN ACCIDENTA ERROR.

The utmost care must be taken in assigning the prop algebraic sign as described above because if the rules a disregarded false results are obtained. To save time an reduce the possibility of error a form should be prepar on which is included a place for each step in the calcul tions.

COAST ARTILLERY IN ACTION

AA in Action

Fighting in Tunisia

Army antiaircraft gunners have become so efficient against both the Germans and Japs that in some cases enemy planes failed to return after an initial action, according to reports to the War Department.

Two instances of this expert defense against enemy aircraft were told by Colonel James P. Hogan who commanded an antiaircraft regiment in Tunisia.

Reporting to Army Ground Forces Headquarters, Colonel Hogan recounted his outfit's baptism of fire at Thelepete, a village south of Kasserine Pass where positions had been taken to defend two nearby airfields.

"That day," he said, "six German ME-109's came over in an attempt to bomb one of the airports. Three of the planes flew in at high altitude while the other three dropped down in low-level attacks—a typical German maneuver we were to see repeated many times.

"I was well satisfied with the conduct of my men. They remained level-headed, staunch and completely in control of themselves, hitting one bomber so thoroughly that judging from the streamers of black smoke behind him he must have pancaked somewhere behind the enemy lines."

Ordinarily, Colonel Hogan said, the high-altitude bombers would first act as a decoy, then follow through with a low-level attack in company with the remaining planes but on this instance they refused to enter the fight. And the Germans did not return in the two weeks the outfit was in the area.

In another battle at Mateur, Colonel Hogan said, "units of our artillery antiaircraft regiment moved under cover of darkness into positions near three bridges where Army Engineers, working without protection, had been bombed and strafed constantly for days. The next day, five Messerschmitts and two Focke-Wulf 190's flew over. We shot down three and scored a probable on one of a formation of four others that had joined the original group. Again the Germans refused to return and not one Nazi bothered the engineers during the rest of the period the regiment remained there."

Another instance of accurate shooting was reported by Colonel Willis J. Tack and Lieutenant Colonel Frank J. Lawrence, members of an Army Ground Forces observer team recently returned from the South and Southwest Pacific.

"We occupied Rendova on June 30," Colonel Tack said, "and the Jap bombers first came over on July 2. They returned on July 4 and those gunners gave them a real reception with the 90mm's. They knocked down twelve bombers."

All the officers praised the American soldiers highly, not only for their precision but for their high spirits and ability to learn quickly and adapt themselves to every battle occasion.

Citations

Distinguished Service Medal

Major General John P. Smith, United States Army, for exceptionally meritorious and distinguished services in the performance of duties of great responsibility as Commanding General, Fourth Corps Area, from 11 October 1940, to 25 February 1942. During the period Major General Smith was in command of the Fourth Corps Area, approximately half of the troops of the Army, within the continental limits of the United States, were stationed in the Corps Area. Major General Smith carried out his duties with energy and marked ability, and the success with which the expansion of the Army was carried out in that Corps Area was the direct result of his untiring efforts, his leadership, and the inspiration which his policy of service to the field forces furnished to all who worked with him.

* * *

Soldier's Medal

Corporal Harry Livchak, Coast Artillery. For heroism in Alaska on January 24, 1943. Corporal Livchak waded twice through the freezing waters of a heavy surf at the base of a fifty foot cliff to assist ashore exhausted members of the crew of a foundered barge. Laboring under the handicap of a previously sustained leg injury, Corporal

Livchak, with the aid of a rope, succeeded in assisting the crew members to scale the cliff.

Sergeant Martin F. Hachfeld, Coast Artillery. For heroism in Algeria in April, 1943. Sergeant Hachfeld saved from extensive injury and death a fellow soldier, who, while cleaning a machine gun, accidentally ignited the cleaning fluid. Sergeant Hachfeld entered the burning room, removed the injured soldier and smothered the flames on the soldier's clothing before mortal injuries were suffered.

Corporal John Casteel, Coast Artillery. For heroism in French Morocco, in April, 1943. Corporal Casteel heard a plane crash near his position. Despite a heavy fog, he and a comrade located the wreckage and, heedless of numerous explosions within the wreckage, carried two of the crew who were lying near the plane to safety and gave them first aid treatment. Hearing a shout, Corporal Casteel, with the aid of his comrade, entered the flaming wreckage, knowing it contained explosives, and brought another member of the crew to safety.

* * *

Legion of Merit

TO: Earl H. Metzger, Brigadier General, U. S. Army. Home Address: 78 Peachtree Memorial Drive, Atlanta, Georgia.

FOR: Exceptionally meritorious conduct in the performance of outstanding service as G-3 of the Fourth Service Command during the period of expansion, reorganization and training of the military establishment and during the initial stages of the present war. Appointed G-3 of the Fourth Service Command on October 1, 1938, he demonstrated a high quality of leadership, organizational and executive ability in the handling of matters pertaining to the induction of the National Guard into Federal service and to the organization, training and expansion of the Army, and in matters pertaining to internal security within the Service Command at the outbreak of the war. In the solution of problems arising, his keen insight and able grasp of matters pertaining to the G-3 Section made him an invaluable aid to the Service Commander during this critical period.

TO: Nelson Dingley, III, Colonel, General Staff Corps. Home address: Fairway Apts., Pelham Manor, N. Y.

FOR: Services of high responsibility as executive officer of a C. A. Brigade (AA) and later as Chief of Staff of the Hawaiian Antiaircraft Artillery Command. Upon his own request, Colonel Dingley was relieved of duty with the Inspector General's Department on the day of the attack on Pearl Harbor and assigned to combat duty. Since then, by his calmness, excellent judgment, tact and inspiring efforts, he quickly welded the staff and units into an efficient team which quickly overcame the discomposure caused by the surprise attack. Colonel Dingley's brilliant tactical intelligence, his unfaltering attention to duty, and his marked executive ability have been of inestimable value in the expansion of the Hawaiian Antiaircraft Artillery Command. His achievements under adverse conditions have brought great credit to himself and the military service.

TO: Darwin D. Martin, Colonel, Coast Artillery Corps. Home address: 4393 Bedford Road, Detroit, Michigan.

FOR: Exceptionally meritorious conduct in the perfor ance of outstanding service from 25 January 1942 to 2 December 1942 as Chief of Staff to the Chief of Hawaii Artillery in organizing the Office of the Chief of Hawaii Artillery and supervising the tactical training of all artille units in the Hawaiian Department. Colonel Martin's o ganizing ability and untiring efforts were responsible f establishing and maintaining the then rapidly increasi artillery force on Oahu and the outlying islands of the Ter tory. His excellent judgment and superior handling of a artillery matters contributed greatly to the precise and e fective coördination of artillery fire power now existing the tactical units of the Department. In the problem expansion of the Seacoast Artillery Command from its pe war organization to its present strength, through Colon Martin's skill, resourcefulness, and persistent untiring e fort, new batteries were so located and coördinated wi respect to previously existing batteries that there was d veloped an arrangement of batteries and calibers whi provides a positive maximum of offshore fire power coveri water approaches to every vital installation of the Island Oahu.

TO: George J. Schulz, Colonel, Coast Artillery Cor Home address: Hartly, Delaware.

FOR: Exceptionally meritorious conduct in the pe formance of outstanding service as commanding officer of Coast Artillery (AA) regiment and Executive of a for that established and defended an island base in the Paci during the period January 19, 1942, to February 18, 194 Colonel Schulz continued in active command of his re ment while also assigned to duty as Force Executive. Duri this period, his regiment joined the Force and moved foreign service. The Force established itself, organized t Base and its defenses and defended the Base. As regimen commander, Colonel Schulz planned, organized and co manded the complete antiaircraft defense of the Base. Force Executive, he organized the Force Staff and plann and supervised the operations of the Force. His tirel energy, his broad experience and his virile leadership h tened the orderly preparation of the defenses and facilitat the defense of this island base.

TO: Charles K. Wing, Colonel, Coast Artillery Cor Home address: Carrington, North Dakota.

FOR: Exceptionally meritorious conduct in the perfor ance of outstanding service in planning the antiaircraft d fenses of Oahu. During and immediately after the att on Pearl Harbor on December 7, 1941, he had all eleme of the Antiaircraft Artillery moved promptly to field p sitions, those positions organized, and the entire antiairc warning and intelligence system put into effect. He work long hours with limited means. His energy, attention duty and foresight, greatly facilitated the rapid expansi of those defenses to their present size and dimensions.

TO: Frank J. Zeller, Lieutenant Colonel, Coast Ar lery Corps. Home Address: Mendocino, California.

FOR: Exceptionally meritorious conduct in the perfor ance of outstanding services as a Post Staff Officer in Ala

since December 30, 1940. During this period Lieutenant Colonel Zeller as a Post Staff Officer prepared policies for and supervised the execution of arrangements for the supply, transportation and construction of that station and its sub-posts.

TO: Gilmour C. MacDonald, Captain, Coast Artillery Corps. Home address: 517 Ash Avenue, Ames, Iowa.

FOR: Exceptionally meritorious conduct in the performance of outstanding service. Captain MacDonald, by continuous and untiring application to the problems of service of his matériel, remarkable ingenuity in designing practical devices to meet those problems, marked ability in recognizing the merits of the work of others, and outstanding resourcefulness in constructing equipment with apparently inadequate facilities, produced for the use of his organization and for the service, a number of valuable devices, the most notable of which greatly improved the accuracy of anti-aircraft machine gun fire.

TO: Aleck F. MacDonald, Captain (then First Lieutenant), Coast Artillery Corps. Home address: 1807 Brazos Street, Austin, Texas.

FOR: Exceptionally meritorious conduct in the performance of outstanding service. As battalion and harbor defense reconnaissance officer, supply officer, and plans and training officer of a Task Force, he selected battery positions and observation posts with marked efficiency, trained a completely inexperienced reconnaissance section and obtained orientation data for all harbor defense installations operating over difficult terrain. He devised and constructed charts and scales for the conversion of firing data obtained from standard fire-control instruments into a form suitable for use with non-standard weapons.

TO: Maurice V. Griffin, Captain (then First Lieutenant), Coast Artillery Corps. Home address: Winter Street, Tilton, New Hampshire.

FOR: Exceptionally meritorious conduct in the performance of outstanding service as the commanding officer of an antiaircraft artillery gun detachment. Captain Griffin, on the morning of December 7, 1941, as the result of diligent preparation and the skillful training of his command, was able to deliver effective antiaircraft artillery fire against the enemy. During the arduous period subsequent to the attack on Pearl Harbor, he continuously demonstrated superior leadership, together with an outstanding knowledge of antiaircraft artillery, earning numerous commendations for the organization which he commanded.

TO: Willard B. Chellis, First Lieutenant, Coast Artillery Corps. Home address: 310 Haswade Drive, Huntington, West Virginia.

FOR: Exceptionally meritorious conduct in the performance of outstanding service in devising and developing equipment.

TO: Frank Sperl, Warrant Officer, Army of the United States. As chief electrician, Warrant Officer Sperl was responsible for improvising devices used in testing important antiaircraft equipment and for the construction of exceptional items of equipment in emergencies. As the result of his efforts, the testing of important antiaircraft equipment was expedited materially. Warrant Officer Sperl's award is in the Degree of Officer.

His wife, Mrs. Mary A. Sperl, resides at 20 Tidball Road, Fort Monroe, Virginia.

TO: Percy H. Walker, Master Sergeant, Coast Artillery. Home address: 38 Chancy Street, Boston, Massachusetts.

FOR: Exceptionally meritorious conduct in the performance of outstanding service. Sergeant Walker initiated and produced from the personnel of the command at Fort MacArthur, California, the plays "The Yard Birds of Fort MacArthur" and "Hey Rookie." With a unique trailer built by Sergeant Walker, those casts, during off-duty hours, visited many posts and isolated stations which other types of entertainment could not reach. These shows were also put on for the sick and wounded in nearby hospitals.

TO: Leonard A. Wirtz, First Sergeant, Coast Artillery. From September 8, 1939, to August 1, 1942, the conduct of Sergeant Wirtz was exceptionally meritorious in the performance of outstanding services. His ability, initiative, leadership, and resourcefulness contributed in a large measure to the successful construction under great difficulties of barracks and other facilities for officers and enlisted men occupying outlying positions of the Coast Artillery Command in the defense of the Panama Canal. His exemplary conduct and marked devotion to duty have reflected the highest ideals of the military service.

The address of his mother, Mrs. Effie Wirtz, is P. O. Box 294, Athens, West Virginia.

TO: Thomas J. Walsh, Jr., Technical Sergeant, Coast Artillery. Home address: 1416 Reo Street, Lincoln Park, Michigan.

FOR: Exceptionally meritorious conduct in the performance of outstanding service in devising, conducting experiments, and developing instruments of great value to the Army.

TO: Frank Verlinde, Staff Sergeant (then Sergeant), Coast Artillery Corps. Home address: Route 2, St. Charles, Michigan.

FOR: Exceptionally meritorious conduct in the performance of outstanding services. As commander of a platoon in a Coast Artillery (AA) regiment, he established a gun position in Iceland under most unfavorable conditions. Due to his high qualities of leadership, initiative and devotion to duty, the smartness and efficiency of the personnel of his platoon and the excellent condition of the armament were outstanding in the regiment.

TO: George H. Raisler, Corporal, Coast Artillery. Home address: Marion, Wisconsin.

FOR: Exceptionally meritorious conduct in the performance of outstanding service in devising and conducting experiments of great value to the Army.

TO: Ronald E. Waite, Corporal, Coast Artillery. Home address: Garden City Avenue, Garden City, Kansas.

FOR: Exceptionally meritorious conduct in the performance of outstanding service as battery mechanic. As a result of his ingenuity, Corporal Waite designed and constructed an improvised mount for an automatic rifle.

COAST ARTILLERY BOARD NOTES

Any individual, whether or not he is a member of the service, is invited to submit constructive suggestions relating to problems under study by the Coast Artillery Board, or to present any new problem that properly may be considered by the Board. Communications should be addressed to the President, Coast Artillery Board, Fort Monroe, Virginia.

Switching facilities for time interval lines. The Switchboard BD-15 has been used for many years in switching the time interval lines of harbor defense batteries. This switchboard provides facilities by means of which any of twenty time interval lines may be connected to any of four circuits from a source of time interval signals. If all of the time interval lines of each battery were connected in parallel the switchboard would serve twenty batteries in a harbor defense, but this arrangement is characterized by extreme lack of flexibility in switching individual lines. Furthermore, the switchboard will accommodate simultaneously only four of the eight different time interval signals available from the Time Interval Apparatus EE-86-A.

The Coast Artillery Board initiated action in 1941 to provide time interval switching facilities adequate to present-day needs of the harbor defenses. As a result of this action, the Signal Corps has developed the Control Panel BD-74-H, for use in large fire control switchboard rooms, and facilities similar to those in the Control Panel BD-74-H for application to switchboards in smaller fire control switchboard rooms.

The Control Panel BD-74-H consists of a Switchboard BD-74-H and the apparatus and material necessary for the conversion to a time interval switchboard. The upper eight jack strips of the board are used for time interval jacks and supervisory lamps, while the lower ten jack strips are utilized for connection to the time interval lines of the various batteries. The lines of each battery are connected to cut-off jacks, which are wired in parallel and connected through the left-hand jack of the group to the line carrying the normal time interval of the battery. Provision is made for applying time-interval signals received from a local or remote emergency source, in case of failure of the EE-86-A in the switchboard room. Materials for fuze, fuze alarm, and test circuits are provided.

The Control Panel BD-74-H is considered to have the following advantages:

(1) All time interval lines for each battery are grouped together and, when appropriately labeled, are identifiable at a glance without recourse to switchboard room records.

(2) Time interval lines can be switched quickly and accurately in response to telephoned requests.

(3) Provision is made for the rapid substitution of an emergency source of time interval signals in case of the failure of the Time Interval Apparatus EE-86-A, or during routine maintenance of that equipment.

(4) The alarm circuit provides instant and positive notification to the switchboard attendant in case of a short circuit on any of the time interval lines.

(5) Signal lamps afford visual indication of the failure of any of the time interval jack strips to receive its proper impulse.

(6) The circuits are arranged to permit easy and rapid testing and fault location.

A considerable number of batteries are being constructed in locations remote from established fire control switchboard rooms. To provide adequate telephone and time interval service to these batteries, small switchboard rooms are included in the battery emplacement. These switchboard rooms usually are equipped with a single Switchboard BD-74-K. Time interval switching equipment providing facilities similar to those in the Control Panel BD-74-H have been developed for inclusion in this switchboard.

Standardization of the time interval switching equipment and approval of a basis of issue have been recommended by the Board. In the meantime, the equipment is being provided as rapidly as possible by the Signal Corps on the basis of known requirements.

Emplacing 90mm Anti-motor Torpedo Boat Batteries. Several recent requests for emergency fire control scales for 90mm anti-motor torpedo boat batteries have been received wherein it was indicated that the guns were not emplaced at the same or approximately the same height of site. A situation of this kind leads to difficulties in determining firing elevations for each gun. In order to gain the desired accuracy assuming the situation discussed above, individual elevations must be determined for each gun, thereby unduly complicating the fire control system being used.

The most practical solution to this problem is considered to be the emplacement of the guns within height of site limits of plus or minus 1.5 feet where practicable, making possible the determination of only one elevation and thereby avoiding undesirable inaccuracies. This solution

also is consistent with standard seacoast artillery practice for rapid fire armament.

Base-end data transmission system. Equipment for the automatic and continuous transmission of base-end data is under manufacture and initial allotments are ready for distribution.

The Azimuth Transmitters M7 and M8 are intended for application to the Azimuth Instrument M1910 and Depression Position Finder M1, respectively. When the instruments are modified by the installation of the data transmitters, they will be known as the Azimuth Instrument M2 and Depression Position Finder M2, respectively.

Radio for emergency transmission of base-end data. The vulnerability of fire control telephone lines to damage from shell fire, bombing, enemy raids and sabotage has long been recognized. While the possibility of damage can be reduced by intelligent planning of cable and field wire lines and by suitable construction practices, combat experience has shown that even a well planned and constructed system can be disrupted under intensive ground and aerial attack. In two notable instances of the present war, communication with base-end stations was lost early in the action and the effectiveness of fire control was greatly reduced.

After several months of study and test of a considerable number of types of radio sets, both frequency-modulated and amplitude-modulated, the Coast Artillery Board has recommended the issue of the Radio Sets SCR-610 and SCR-808 for the emergency transmission of base-end data, and for communication with forward observers during landward firing by seacoast artillery batteries. While the SCR-610 is considered the most suitable of the sets tested for use at base-end stations and by forward observers, this set is not available at present for issue to seacoast artillery organizations, and the Radio Set SCR-828 has been substituted. The SCR-808 is considered suitable for use at the plotting rooms of both mobile and fixed seacoast artillery batteries. These sets are frequency-modulated and operate in a frequency range far removed from that of the amplitude-modulated radio sets used in seacoast artillery command networks. Consequently, no interference with the latter network can result.

The issue of sufficient sets to each harbor defense battery of caliber six inches and above to provide communication to two separate baselines (or three contiguous baselines) has been recommended. For mobile seacoast artillery batteries, sufficient equipment to provide communication to two contiguous baselines has been recommended. While the basis of issue has not been determined finally, it appears that the sets will be issued on the basis recommended, at first to organizations serving outside the continental limits of the United States. Sufficient equipment for training purposes, at least, probably will be authorized organizations within the United States.

The Radio Sets SCR-808 and SCR-828 are designed for operation from vehicular storage batteries. For this reason, SCR-808's used by forward observers in landward firing must remain in vehicles in defiladed positions near the observation posts. The Board has recommended that a remote control unit permitting transmission from a field telephone at the observer's position be provided.

Since, at harbor defense base-end stations and plotting rooms, 115-volt, 60-cycle alternating current normally will be available, a power unit permitting operation of the sets from such a power source is being developed. In addition, special antenna equipment to improve the performance of the sets in typical fire control installations is under development.

Modification of Power Rammer for 16-inch Barbette Carriages M4 and M5. The Ordnance Department has been requested to modify the power rammers now provided for 16-inch Barbette Carriages M4 and M5 by the addition of an unstroking device for the withdrawal stroke. Service tests of an experimental model of this unstroking device indicate that it effectively stops the rammer at the end of the withdrawal stroke and prevents creeping of the rammer head. This unstroking device is entirely automatic, once the correct setting is obtained.

It is expected that instructions for the adjustment, maintenance and operation of the complete power rammer will be available at an early date.

Insertion of primers in firing mechanisms of 6-inch Guns M1903, M1905 and T2. Pending the revision of FM 4-20 and AR 750-10, the following operations may be performed in accordance with approved safety precautions:

(1) During the operations of loading and firing 6-inch guns M1903, M1905, and T2, electric primers may be inserted while the breechblock is open.

(2) During the operations of loading and firing 6-inch guns M1903, M1905 and T2, friction and percussion type primers will *not* be inserted until the breechblock has been closed and locked.

Auxiliary Azimuth Scales for Plotting Boards. The station arm couplers on the M3 and M4 type plotting boards vary in length from .75 inch to 25 inches. Whenever the azimuth from the observing station to the target is within about 15 degrees of the azimuth, or back azimuth, from the station to the directing gun, the coupler is nearly in line with the station arm and it is difficult accurately to position the arm in direction. In order to correct this defect, all future M3 and M4 plotting boards will have azimuth sub-scales mounted in the board. The auxiliary azimuth scale is a metal strip in the form of an arc and is countersunk into the surface of the plotting board near the outer periphery. The scale is marked in azimuth and oriented exactly in respect to the main azimuth circle. In operating the board, the arm setter sets azimuth by means of the standard index box until the azimuth is near the zone where previous tests have shown that inaccurate azimuths are obtained. He then begins setting the fiducial edge of the station arm directly on the auxiliary azimuth scale, holding the index box unclamped from the main azimuth circle. This process is continued until the station arm has passed through the zone of inaccuracies.

The scales are being manufactured with an arc of twenty degrees. The greatest accuracy in reading the sub-scale is obtained with the scale for the shortest coupler link, the accuracy decreasing with the increase in the length of the coupler link.

Since available facilities are being used for the production of new M3 and M4 plotting boards to meet present requirements, there may be delay in supplying azimuth sub-scales for earlier boards.

Coast Artillery Journal

Fifty-second Year of Publication

COLONEL FREDERIC A. PRICE, Editor
LT. COL. ARTHUR SYMONS, Associate Editor
MASTER SERGEANT CHARLES R. MILLER,
Circulation Manager

The purpose of the Association shall be to promote the efficiency of the Coast Artillery Corps by maintaining its standards and traditions, by disseminating professional knowledge, by inspiring greater effort towards the improvement of matériel and methods of training and by fostering mutual understanding, respect and cooperation among all arms, branches and components of the Regular Army, National Guard, Organized Reserves, and Reserve Officers' Training Corps.

News and Comment

New Editor Reports

Under the provisions of the 60 year regulation, the present Editor of the JOURNAL is relieved from that duty with the publication of this issue.

Colonel Eugene B. Walker, C.A.C., has reported for duty and becomes the next Editor of the COAST ARTILLERY JOURNAL.

* * *

Stuka "All Done"?

The Stuka dive bomber is "all done," in the opinion of an Antiaircraft battalion commander whose unit destroyed at least seventy-eight enemy planes with "probables" running the score up over a hundred in the Tunisian campaign.

"The Stukas are slow, easy to catch and easy to hit," said Lieutenant Colonel John C. Smith on his return to Army Ground Forces Headquarters. "I think the Stuka is all done," he said. "Our antiaircraft stuff scared the Stukas, who found it too costly to come too close to us. There were lots of them at first, but very few at El Guettar."

Colonel Smith's unit, activated at Fort Sheridan, Illinois, under the Antiaircraft Command at Richmond, Virginia, went into action early.

"We got one plane right from the landing barge when we were moving off the boats, and ten more on the shore while we were covering the infantry and artillery while they landed," Colonel Smith said.

"We did a lot of covering work. At one time we used our half tracks to pull the artillery into position and then stayed to protect them from air attack while they pounded the enemy with heavy shells.

"A lot of the antiaircraft units were in the rear and so did not have the opportunity to score that we had. Our battalion is credited with 78 enemy planes officially destroyed and our total will run well over 100 with our 'probables.'"

Colonel Smith pointed out that it isn't always easy to determine the success of antiaircraft fire by on-the-scene observation.

"I recall one day when we were in position on an airfield," Colonel Smith said, "and five Me 109's came over and bracketed our gun pits. They strafed everything in sight. Later I went to the positions and bawled out the gun crews for not knocking down a single plane. An observer said he had noted one hit on one plane.

"Later investigation showed that two of the planes crashed just over nearby mountains, and a third crashed twenty miles farther. That was good shooting—three out of five. They didn't bother us after that.

"Thirty-three enemy planes dived on us during the last push," Colonel Smith continued, "and we claimed one probable. A little further along their course only twenty planes were sighted. We never found out what happened

those 'missing thirteen.' We don't claim we got thirteen, but we don't know what happened to them."

Colonel Smith told of an officer who knocked down seven planes in three hours of fighting, the affair resulting from two attacks, each about an hour and a half long.

"We used our antiaircraft guns on machine gun nests with great success," Colonel Smith said, "and found we were kept very busy as we moved along with the troops. In fact, we covered the rear guard during the Kasserine Pass battle and found lots of activity.

"Initially in the campaign there was plenty of dive bombing, but toward the end there was very little. I don't think any enemy planes got back from the last raid.

"We had excellent equipment, and we were right up there where the planes were flying thick, which permitted us to establish our record."

* * *

Not so Slow

August and September are usually considered slow months in the JOURNAL's Circulation Department, but this year there was no slow-down in Sergeant Miller's bailiwick. Colonel W. C. McFadden, commanding the 61st Coast Artillery, was as usual a one-man circulation campaign, submitting in separate communications since the last issue went to press, groups of seven, eight, three, and two subscriptions. Long ago we lost track of the total number of subscriptions Colonel McFadden has sent in over a period of many years.

The largest single order since the last issue came from the 166th AA Gun Battalion, Lieutenant Colonel James M. Mozzey, commanding. Major Charles W. Aufgang, Executive, signed the letter of transmittal for twenty-four subscriptions, which made the unit a member of the select 100% group. Another 100% group was Battery C, 1st Battalion, 202d CA(AA). The Battalion, commanded by Lieutenant Colonel Wallace W. Elliot, sent in ten subscriptions, including the three necessary to make C Battery 100%.

The 102d CA Bn. (AA), Major Edward Hogan, commanding, sent in ten subscriptions; the 833d AAA AW Bn., Lieutenant Colonel Thomas A. Baker, commanding, accounted for seven. Chief Warrant Officer Louis J. Cavo signed the letter which accompanied six new subscriptions from the Harbor Defenses of San Diego; Warrant Officer Junior Grade George T. Murnock did the same for the 601st AAA Gun Battalion's list of ten subscriptions. Lieutenant John A. McMichen, Adjutant of the 601st CA(AA), submitted five orders. The Commanding Officer of the 601st, Colonel H. A. McMorrow, has been giving Colonel McFadden a close race over a period of years.

Major M. A. Gross, commanding the 2d Bn. of the 601st CA(AA), submitted five subscriptions and some renewals in a personal letter to one of the JOURNAL staff, along with some helpful suggestions concerning what the subscribers at his APO would like to see in the magazine. The Major's suggestions coincided with what the editorial staff has been trying to present—more information from our far-flung outposts.

The 476th AAA AW Bn., Lieutenant Colonel F. T. Ostenberg, Commanding, sent along twelve new subscriptions; the 47th AAA Group, Colonel John L. Goff, commanding, accounted for five. Battery A, 426th CA(AA) Bn., Lieutenant James J. Cardo, commanding, ordered five new subscriptions.

Last-minute entries included five subscriptions from Captain D. F. Bresnan for members of Battery F, 22d Coast Artillery; thirteen from Lieutenant Endicott A. Batchelder for members of Major Francis C. Howland's 642d AAA AW Bn., and eight from Lieutenant Benjamin H. Mead, Jr., for members of the 572d AAA AW Bn.

* * *

The Me 323

The Me. 323, the big German transport plane which has been described as "a powered glider," and was used by the enemy towards the end of the campaign in Africa, can, it is now officially disclosed, mount up to eighteen 7.9mm machine-guns.

It can carry a three-ton truck, a light tank, or 100 troops.

During the last days of the Tunisia fighting, Allied planes on one occasion shot down twenty-one of these aircraft in ten minutes.

Cheapness of production is the main feature of manufacture, for the aircraft is constructed mainly of steel tubes and plywood, and is fabric covered.

The Me. 323 is six-engined and has a span of 181 feet and a length of 93 feet 4 inches. It was developed from the Me. 321 glider, and has, in fact, almost an identical airframe.

The engines are Gnome-Rhone 14-cylinder, two-row, radials of 965 h.p. at 13,200 feet, which give it a maximum speed of approximately 170 m.p.h. at sea level.

Normal crew consists of two pilots, a radio operator, and two engineers.—London *Daily Mail*.

* * *

AA Marching Song

Several delayed arrivals of entries from distant APOs have in turn delayed the final judging of submitted songs. Fifty entries of combined words and music have been received and will be judged in competition. The next issue of the JOURNAL will carry the words and music of the winning AA Marching Song.

* * *

British Mission to Coöperate Against Japs

Maximum British coöperation with the United States in future operations against Japan is now being planned by a special British Military, Naval, and Air Mission, headed by Major-General J. S. Lethbridge, Royal Engineers, which has recently arrived in Washington.

General Lethbridge and his staff are engaged in the study of all problems of tactics, weapons, supply, transport, communications, and medical services connected with the war against Japan, other than future operational planning.

The mission will learn at first-hand the latest American experience of the Pacific War, and its members will visit military and naval establishments throughout the country with this object in view. On completion of its studies in the U. S., the mission will leave for the Pacific war theatres to observe the fighting against the Japanese on the spot, and will be able to assess the problems in greater detail as a result

of its experience in the combat zones. In this way it will be able to lay the logistical foundations for the British contribution to future campaigns against the Japanese.

The mission was formed following Mr. Churchill's Guildhall speech of June 30, 1943 in which he promised that when Germany had been crushed in Europe "every man, every ship, and every airplane in the King's service that can be moved to the Pacific will be sent and there maintained in action by the people of the British Commonwealth and Empire.

* * *

CAC Colonels to Brigadier General

Seven colonels of the Coast Artillery Corps were nominated for promotion to the temporary rank of brigadier general September 28: Edward Barber, William R. Nichols, Harold R. Jackson, Nathaniel A. Burnell, 2d, Thomas R. Phillips, Raleigh R. Hendrix, and Frank C. McConnell.

* * *

Heavy Naval Losses

London, July 10 (AP).—Losses which "may well prove fatal" to Japan's navy are noted along with an amazing increase in United States naval power in the latest issue of "Jane's Fighting Ships." (The volume went to press before announcement of the losses inflicted on the Japanese fleet in the recent fighting in the Solomons.)

"Japan continues to make free use of her cruisers and destroyers in the Pacific, undeterred by her heavy losses. The most serious of these was the destruction in the Battle of Midway of the aircraft carriers *Akagi, Kaga, Hiryu*. This blow, added to the previous sinking of the *Ryukaku*, has imposed a handicap which in the long run may well prove to be fatal to Japan's naval aspirations."

Of the United States naval program, Janes says:

"Though full details are not available of the enormous expansion of the United States Navy, "Fighting Ships" has been able to secure sufficient data to show the rapid strides that are being made with its war construction programs. All six ships of the *Washington* class are now in service and the 45,000-ton *Iowa* and *New Jersey* are to be commissioned in 1943.

". . . Every exertion is being made to press on with the many new aircraft carriers that are in hand.

"So far four carriers of the *Essex* class (25,000 tons) and six of the *Independence* class (10,000 tons) have been launched, and several of them are believed to be in commission. The progress on new cruisers, destroyers, submarines and smaller vessels is scarcely less remarkable."

The war loss section of the new book compared with the 1941 volume shows substantial losses by all major belligerents. In most cases, the book points out, the losses charged against enemy fleets are likely to be much lower than they actually are, since the publication pursues a conservative policy in listing losses.

Of German U-boats "Fighting Ships" says, a "notable feature of the recent German submarine design is that the double-hull form which was used in the larger U-boats in 1914-1918 has been discarded in favor of the single-hull type. This simplifies and accelerates construction, although it increases the U-boat's vulnerability to depth charge attack. Spare torpedoes are carried on the deck as well as in the torpedo compartment forward. There is no basis for reports of engines of a novel design having been adopted.

* * *

Training Navy AA Gunners

A new and startling realistic scientific training device invented to advance the Navy's program to make its anti-aircraft gunners the most deadly in the world, has been put into use. The new device creates within a small, blacked-out room the illusion of aerial bombing and strafing, and steels our men to stand up and fight the surprise and frightfulness of such attacks. The "hell on wings chamber," as some Navy men call it, has proved valuable at the anti-aircraft training and test center at Dam Neck, a bleak isolated stretch of beach on the Atlantic Ocean.

The Navy is rushing installation of similar units at the destroyer-escort crew training school and other units will be set up at other training stations throughout the United States and at our outposts from Bermuda to New Caledonia.

An amplifier and super-projector reproduce on a giant screen the sound and three dimensional sight of speeding planes—dive bombers, torpedo bombers, high-altitude bombers, fighters. A "machine gun" faces the screen, but instead of shooting bullets it stabs electrical "tracers" at the darting, roaring planes. An automatic computer records the hits and misses and a light flashes at the end of the "machine gun" when the trainee scores a hit.

A major advantage of the device, Lieutenant Commander Philip D. Gallery, commanding officer of the Dam Neck training center, explained, is its economy. Although the units cost about $20,000 to manufacture, they make it possible for trainees to fire the equivalent of 100,000 twenty-mm shells a day. This saves about $15,000 to $20,000 (or approximately the cost of the machine) each day.

"This is the nearest thing possible to standing on the deck of a destroyer and getting dive-bombed and strafed," the officer shouted over the roar of a "dive bomber" that was a whizzing black shape on the screen. The trip-hammer of the electric machine gun drowned out any further words. A trainee stood swinging the gun and sending electric darts against the split second target. "Up, up!" barked the instructor. "Left, down, down! you didn't lead him, you were a mile away. Next man!" The next man stepped up, a marine. A torpedo bomber swooped in low, pulled up sharply and "climbed" with exciting effect. The other trainees strained forward in their seats as they watched the marine peppered away at the torpedo plane and other "ships" which twisted, turned, and dived. The instructor kept up his running fire of shouted instructions.

The Army has heard about the machine. It apparently thinks so well of it that each day it sends over a different crew of soldiers on a 60-mile round trip to practice during the one hour of the day Commander Gallery's charges are not using it.—Chicago *Tribune*.

* * *

A New Requisite for Promotion

The British emphasize the importance of equipment conservation so strongly that they have established it as a prerequisite to promotion.

A Brigadier on duty in North Africa has recently testified at their campaign driving westward from Egypt to unisia provided their greatest field test for British rolling uipment. Minor troubles had to be solved on the spot, airs made, and the vehicles kept rolling along. Incapaci-ed motor vehicles meant reduced fire-power and man-wer. In that fast-moving drama that spelled the doom of e Axis in North Africa there could be no lessening of ef-tive Allied power due to vehicular attrition that was not eparable. All personnel had to be inoculated with the cessity of conserving the life of every form of equipment. Our own men are famous all over the world for their kering skill. They are mechanically minded. We also ve the reputation in peacetime of being prodigal in waste. The American's natural attitude that "there is more here that came from" must be changed upon entry into rvice to "conserve the nail, the shoe, the truck, and hasten tory."

Preventive Maintenance should be the creed of every structor. It is not enough that men should be taught w to operate—they must be taught how to maintain. hether small arms or 16" rifle—whether a shoe or prime wer—every fighting weapon, every article of transporta-n must be efficiently maintained. Weapons are no good ransportation, whether foot or vehicle, has failed.

The litter that an Army leaves behind should present e first task for an inspector.

"Spit and Polish" is fine as an aid to build and maintain morale, but for ultimate efficiency watch the garbage, the roadside ditches, the open fields where men and vehicles have passed by.

Garrison, maneuver or battle—waste and give to the enemy; conserve and use against him.

* * *

A Bouquet

The sun shone brighter around the JOURNAL office the day we received the following from Major Herman W. Pontius, CAC: ". . . please apply check (*for overpayment*) to continue my subscription to June, 1945; as long as I am a Coast Artillery officer I want the JOURNAL. I think it is indispensable to any Coast Artilleryman. It is a fine piece of work."

* * *

Tinfoil Bombardment

The British have shown that they are accomplished masters in the fine art of inventing little tricks which drive Axis technicians to despair.

They gave one demonstration of their inventiveness during the naval battle off Montevideo which culminated in the scuttling of the Graf Spee. For many months after that battle experts wondered about the bad shooting on the part of the Germans until the British revealed what they had done.

It had been so simple, nobody had thought of it. When-

Sovfoto

A Russian armored AA train, used near Leningrad

ever a salvo from the turret guns of the German pocket battleship was due to fall the British vessels let go with all their depth charge throwers. The Germans could not see that, but they did see the big splashes made by the exploding depth charges.

Naturally, they ascribed them to their own shells—and these splashes made so confusing a pattern that the German's "corrected" their fire in just as confused a manner.

—*PM.*

Spots AA Fire at Target

A recent German air raid over Britain was watched from the air by a Staff brigadier from AA Command, who was carrying out an inspection of the area when the German planes attacked. He instructed his pilot to circle the fringes of the barrage at 12,000 feet while he made close observations on the effectiveness of the defenses.

The last time this brigadier had such an opportunity was during the Battle of Britain.

He reported to his Commander-in-Chief that, seen from the air, the improvement in the aim and density of the anti-aircraft fire was "most remarkable."—London *Daily Mail.*

British AA Battery

The British AA Battery, mentioned in the JOURNAL's *Activities* section as being at Camp Davis, was last reported in the New York City area, where it was staging demonstrations for units of the Eastern Defense Command. Parades, ceremonies, and entertainments honoring the visiting organization were scheduled.

Radio Interference Eliminated

The invention of a completely successful device for eliminating static interference with radio reception is announced by the Goodyear Tire and Rubber Company. Called "the radio-station neutralizer," the device was discovered by Mr. Gilbert J. Candrisen, a research physicist who spent several years developing it.

It is expected to find immediate application on bomber and fighter aircraft, warships of all sizes, tanks, command cars, and wherever else radio is used. It is expected also to improve the electrical device for detecting enemy aircraft and ships, as well as the transmission by wireless of pictures and maps.

The neutralizer not only keeps static from interfering with radio reception, but actually converts the electrical energy of static into useful work. In a demonstration held yesterday at the company's plant at Akron, Ohio, it was proved that the neutralizer could reduce to a bare whisper man-made electrical disturbances more powerful than the greatest storms of thunder and lightning. In one test a 25,000-volt spark from the ignition system of an engine was projected directly upon the antennae of a wireless receiving set. The device so effectively neutralized this that it was possible to tune in to a short-wave radio program fr Europe.

The neutralizer uses small electronic tubes in such a w that they are automatically adjusted to each radio sign whether weak or strong. These tubes discriminate betwe static and the desired signal, and automatically control t amount of static energy which can pass through the wi less set. A detection control circuit eliminates static which louder than the incoming signal. The device is so compa that it can be attached to any wireless set.—*London Tim*

Of Historical Interest

Italian Artillery:

Coast Artillery—Italy's coast artillery consists of railw cannon, permanently fixed cannon, and a few heavy fi cannon, in addition to machine guns and antiaircraft c non. Former naval guns have been used for the railw artillery, which has been partly protected by armor. A cording to *Militär-Wochenblatt*, No. 49, 1942, they ha an unlimited lateral field of fire.

21cm Mortars—The 21cm Ansaldo L/22 Model mortar adopted in Italy has a screw type breech block a split trail. Its elevation varies between 0 degrees and p 70 degrees; its traverse covers 75 degrees. With a project weighing 101 kilograms and an initial velocity of 5 meters per second, a maximum range of 16,000 meters attained. The gun, which has a firing weight of 15,8 kilograms, is transported as a single or double load. T gun when traveling as a single load weighs 15,780 k grams; the barrel on its transporting vehicle weighs 8,2 kilograms. The gun carriage alone weighs 10,800 k grams. In mountains, according to *Nazione Militare*, t gun is broken down into four loads and loaded on four hicles with caterpillar treads.—(*Artilleristische Rundsch* Translated in the *Military Review.*

Christmas Mailing

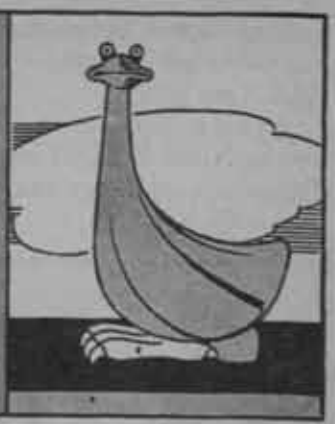
Christmas packages to personnel abroad will be accept for mailing until October 15 for the Army; and until N vember 1 for the Navy.

In this connection, it might be well to mention of more that the JOURNAL cannot accept gift magazine s scriptions for personnel outside the continental limits of United States unless a letter from the person who is to ceive the magazine, requesting the subscription, accom nies the order.

British AA Record

A German reconnaissance plane flying at 36,000 f suffered a direct hit from a 3.7 AA shell, and crashed in South of England. The machine was thought to be a M 109G, a new type. The aircraft was escorted by fighters. A "Mixed Battery" (men and women) made kill.

Coast Artillery Activities



Northern California Sector

BRIGADIER GENERAL RALPH E. HAINES, *Assistant Sector Commander for Harbor Defense Troops*

Scores of artillerymen of the Harbor Defenses of San Francisco returned to their respective batteries August first when the regimental Noncommissioned Officers' school closed its second six weeks of strenuous training at Fort Winfield Scott.

In addition to intensive schooling in coast artillery work, the men were given considerable infantry instruction. Included were the nomenclature, functioning and firing of small arms, use of hand grenades, rifle grenades and bayonets, and defense against chemical warfare. They also learned to handle .30 and .50 caliber machine guns.

Particular attention was given to physical conditioning with the future noncommissioned officers getting strenuous exercise sessions and making at least one trip a day over the commando course.

Officers and men from all over the Harbor Defenses have been flocking to the Red Cross Blood Bank weekly in a blood contribution campaign organized by *The Golden Gate Guardian*, camp newspaper. There is an average of thirty men in each group, with one and usually two groups visiting the bank each week.

Batteries at Forts Funston, Baker, Miley, Cronkhite and Barry have vied with those at Fort Winfield Scott in offering more men than called for. More than a thousand pints of blood have been contributed since the regular blood bank visits began.

New regimental commander in the Harbor Defenses is Colonel James C. Hutson, who succeeded Colonel Felix M. Usis in mid-July.

Brigadier General Ralph E. Haines' name topped the list of entrants in the officers' doubles tennis tourney scheduled to get under way in August. The Harbor Defense commander was teamed with Captain William Epstein. Winner of the singles title was Major Fred C. Weyand, adjutant, Harbor Defenses of San Francisco.

An ambitious program designed to teach every man in the Harbor Defense battalion how to swim has been launched by Lieutenant Clarence Waidelich of a Fort Winfield Scott battery, and First Sergeant William McFarland, Fort Miley battalion headquarters. When the program is completed, all the men will be able to swim a reasonable distance in fatigues and field pack. Some of the first to finish the course staged a demonstration at a Coast Guard water carnival August fifteenth.

Officers and men at Fort Funston are enjoying cinema fare nightly, now that the new recreation building is in use. Latest films are presented and the building is also available for dances, lectures, demonstrations and church services.

Scores of enlisted men throughout the defenses were awarded good conduct medals at ceremonies held in August by the various batteries. Ribbons were presented by Colonel James C. Hutson, Lieutenant Colonel Benjamin Hawkins and Lieutenant Colonel Richard R. Moorman.

Addition of a second mobile canteen to the Fort Winfield Scott Post Exchange has greatly improved service to outlying Coast Artillery units scattered over the Bay Area. Most of the larger detachments get five day a week service now and it has proved possible to extend the territory covered.

In some cases field conditions have been simulated when the perambulating Post Exchanges find troops on routine marches. The mobile stores cover all of San Francisco, visit the East Bay region and dip down into San Mateo County to the south.

Receipt of 1,500 new books from Fort Douglas, Utah, and an overhauling of the books in the Fort Winfield Scott Library have resulted in establishment of a library service to batteries throughout the Harbor Defenses. Boxes of books are left at each battery on a bi-weekly basis. A "balanced fare," with handicraft and fiction emphasized, goes into each box.

Plans are to get the Fort Winfield Scott Library, which was closed temporarily, back into operation soon.

Dogs from the K-9 Corps are on duty at Fort Scott nightly, helping guard key spots against intruders. Keenly alert for irregular noises, the dogs have added appreciably to security precautions on the post.

Formation of an Armed Forces Entertainment Committee for this area is expected to result in the distribution of entertainment to isolated batteries and positions throughout the Harbor Defenses of San Francisco.

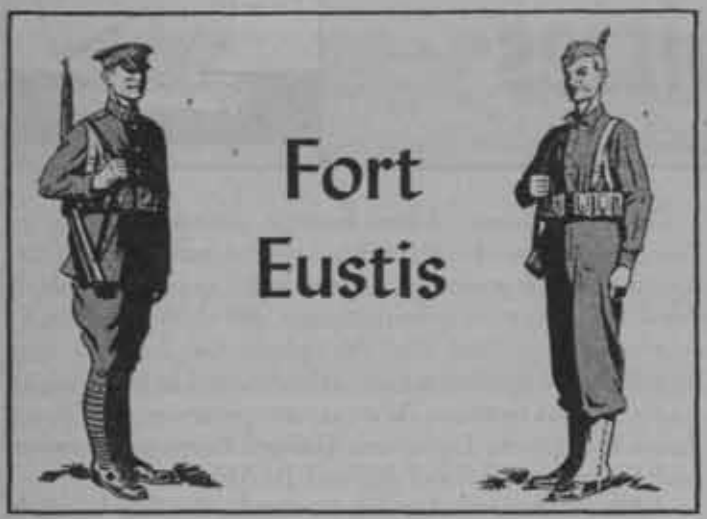
Occasional USO-Camp Shows, Inc., troupes have hit some of the outlying spots, but frequent appearances at all batteries were impossible. Under the new setup more and better-known talent is expected to be trekking to the remote areas.

Entertainment as a whole in the Harbor Defenses has been good, with sizeable USO troupes augmenting the movies at Forts Funston, Scott, Baker and Barry. Another unit to play the area recently was the Camel Caravan. The Red Cross Cookie Brigade will continue its welcome visits to all points.

Hard working insurance officers have met with a high de-

gree of success in this territory, with 88 per cent of the tactical troops carrying GI insurance. Coverage averages $9,618 per policy.

An even higher percentage of men insured is recorded by the Ninth Service Command Unit serving the Harbor Defenses, with 94 per cent. The average policy among these men is $8,500.



BRIGADIER GENERAL JOHN B. MAYNARD, *Commanding*

By Lieutenant Samuel D. Swann, Jr.

Brigadier General John B. Maynard, formerly Commanding General of the Balloon Barrage Training School at Camp Tyson, Tenn., assumed command of the Antiaircraft Replacement Training Center here on Wednesday July 21st, succeeding Brigadier General Edward A. Stockton, Jr.

On Friday August 6 Robert P. Patterson, Under Secretary of War, accompanied by Lieutenant General William S. Knudsen, Director of Production, Office of the Under Secretary of War; and Major General Joseph A. Green, Commanding General, Antiaircraft Command, Army Ground Forces, were present for a garrison review of the men and matériel of Fort Eustis in honor of the Under Secretary.

In spite of increasingly hot weather the training program is keeping up its rigorous pace. Officers and men who have completed training are physically and mentally alert to the multiple problems of antiaircraft. Increasing emphasis is being placed on training crews to engage promptly low-flying planes.

In order to harden truck drivers to actual battle conditions a simulated battle course has been set up and truck drivers are taken in the black of night on a mental conditioning 10.3 mile drive for 60 minutes through land mines, blasts, smoke and explosions in a blackout. The drive is the high point of five weeks of training behind the wheels of the Motor Pool's vehicles. After this hour of concentrated battle conditioning, the drivers have an excellent idea of the noises and annoyances of a night convoy under enemy observation.

So that the men of their commands may not be without training for a trip through an infiltration course, many of the Battalions have been constructing their own infiltration courses as a preliminary to the root-spiked, stump-studded, sky-roofed bit of actual battleground known as the Post Infiltration Course.

As of the 28th of July, the training period has been considerably lengthened thus allowing the men more time to become better trained.

'Tis a very hot day that does not have a silver lining - to take advantage of the closeness of excellent swimming facilities, a training program for the purpose of natatory instruction has been instituted. Many a hot and tired soldier must admit that there is a pleasant side to training, particularly when it seems 110 degrees on the parade ground.

With the lessening of quotas for OCS the importance of the ASTP program is being stressed with the result that many qualified men have been sent to take courses under that program.

The all-military Post musical show "On Furlough" in which WAACs made their first appearance as Thespians was a great success, playing for five nights to crowded houses in the largest theatre on the post. The entire book of the musical was requested by the War Department for study.

On the evening of the 18th of May a large audience of military, naval and civilian guests saw the unveiling of a huge three-paneled mural in Service Club No. 1. June 21st was the anniversary of the second year of service by this fine club to the enlisted personnel of the post.

Sunday June 27 marked the 100th anniversary of the death of General Abraham Eustis, in whose honor this Post was named. General Eustis was largely responsible for the success which attended the foundation of the Coast Artillery School at Fort Monroe and thus may be said to be one of the fathers of the Coast Artillery.

Lieutenant Colonel Frederic W. Cook, CAC, Plans and Training Officer for the 1st Group, was accorded a garrison review June 30, 1943 in his honor to commemorate his retirement after thirty-eight years of service.

The first half of the Post softball tournament was won by the MP Detachment, while Headquarters Battery AARTC was crowned champion of the AARTC. One of the outstanding sports events of Fort Eustis was the Post Boxing Tournament in which it was particularly noted that a spirit of good sportsmanship prevailed throughout all the contests.

September 4th marked the first anniversary of the founding of *The Sky-Watch*, Fort Eustis newspaper. A special sixteen-page anniversary issue of the publication with a pictured history of the post since the newspaper has been in existence was issued to commemorate the occasion.

Photo by Corporal George Arm

Battle course for truck-drivers.

Hawaiian Seacoast Artillery Command

Brigadier General Robert C. Garrett, *Commanding*

By Captain Donald E. Barrett

Sooner or later, almost all Coast Artillerymen make a full day tour of the island of Oahu and see its interesting sights. They pile on trucks, pack away picnic lunches and soft drinks, and set forth from their post early in the morning.

Down the Kam highway, past bustling Pearl Harbor, and through cane fields and across pineapple plantations, roll the all-day excursionists. Off to their left and to their right, here and there, they observe Hawaiian taro patches. Barefooted islanders in their simple garb, cultivate these fields.

Near Schofield, the red dirt for which the area is noted becomes very evident. You are struck by the orderliness of pineapple rows. Clean, neat, and roomy cabins and cottages are occupied by the workers. Plantation homes stand off from the highway at a distance of several hundred yards. Here centers all the activity of plantation life—business, social, and otherwise. Here it is, on occasion, that plantation bands furnish music in the evening, dances are held, and luaus enjoyed. Filipinos, Japanese, Chinese, Hawaiians, Puerto Ricans, and Portuguese work on these plantations, with the Filipinos and Japanese predominating.

Past the vast military reservation of Schofield Barracks and into the land of sandy beaches, blue ocean, and lovely clear skies soldiers travel. From mountain-top vantage-points they have witnessed the panorama of sea and skies: views of enticing beauty. They have seen the Upside Down Falls—which, due to tricky air currents, give the impression of flowing uphill. They have seen the ever-present hibiscus, night-blooming cereus, and other varieties of lovely flowers. They have seen mountain passes, ranges of hills stretching into the distance, thick forest retreats, and small canyons and gorges.

Now they're ready to pause for a while, have a bite to eat, and for a swim at one of the island's finest beaches. From this point on, the tour follows the coastline route.

Everyone shows keen interest in the Korean and Filipino villages, in the Hawaiian shacks, and the fishing activity going on here and there. Near their villages and places of habitation a luau shack most likely will be spotted. It is there that they kill the fatted pig and make merry for a whole afternoon and night.

All morning and into the afternoon the convoy of trucks has been moving at a leisurely pace. Every opportunity is given the soldiers to take in the sights, snap pictures of non-military scenes, and derive some first-hand knowledge of the island on which they're stationed. All those who are curious about the berries and fruits growing near the roadside, are given the chance to sample them.

An industrial home, small communities, the Kaneohe Naval Air Station, and papaya fields are passed. Then the procession mounts to the top of the Pali. From that eminence the view of the sea, mountain ranges, and countryside is truly striking; in fact, the best one on the Island of Oahu. Years back, round-the-world travelers voted it one of the loveliest sights in the Pacific. At this height, soldiers discover that wind currents are very powerful.

Near the close of the trip, soldiers are taken to a summit overlooking the famous blow-hole. Ocean waves gather force, rush against a mass of rock, and force their way up through an aperture. A thin geyser of water shoots upward.

Easily the highlight of the day's journey is a pause at the beautiful Mormon Temple. It's one of the island's most restful and interesting spots. Souvenirs, paintings, and pictures meet the eye in the front building. Then you ascend a gradually-climbing flight of steps. In the center is running water. To the right and left are trees, shrubbery, and well-kept grass. In a moment, you have reached the entrance to the temple itself. Only the most faithful Mormons are permitted to go inside this sanctuary.

At the end of the trip, soldiers are tired but well pleased and stimulated over the day's outing. It has added to their interest in the Island of Oahu, given them a first-hand picture of it, afforded them a chance to relax and make pictures and forget the routine of work. Thus it's easy to see that these round-the-island tours accomplish a world of good.

The Seacoast Artillery Command here is far from satisfied with mere passive maintenance of this Island's big gun defenses.

Officers now take a specialized one month course in gunnery. In groups of twenty-four to thirty, they are attending daily classes to improve their technique in the deadly art of blasting enemy vessels from the ocean.

To be brought abreast of the latest developments in gunnery, the officers' syllabus calls for 60 to 70% of their time to be spent at lectures and demonstrations. The remainder is devoted to work in the field.

Attention is paid principally to the operation of the battery range section and the plotting room, the brain center of every cannon outfit. In drills and in actual firing of the battery, the officers man all the instruments normally operated by their enlisted personnel.

Manning the instruments for test firing in a recent class, student officers scored thirteen hits out of fifteen rounds. Record target practice has improved all around the Island as a result of this course.

When an officer is chosen to attend gunnery school, he is fully relieved from battery duty for the thirty-day period.

In addition, students are required to study from 7 p.m. to 9 p.m. in their quarters every night.

Regardless of his regular assignment, every seacoast artillery officer must qualify in gunnery before winning promotion. Staff and administrative lieutenants and captains, as well as line officers, therefore sit side by side in the gunnery classroom.

Several Marine officers, experiencing a need for expert gunnery instruction, have attended the "cannon college" and emerged from the course with honors. Three Leathernecks were on the roster of one class, seven in an earlier course and one is enrolled at present.

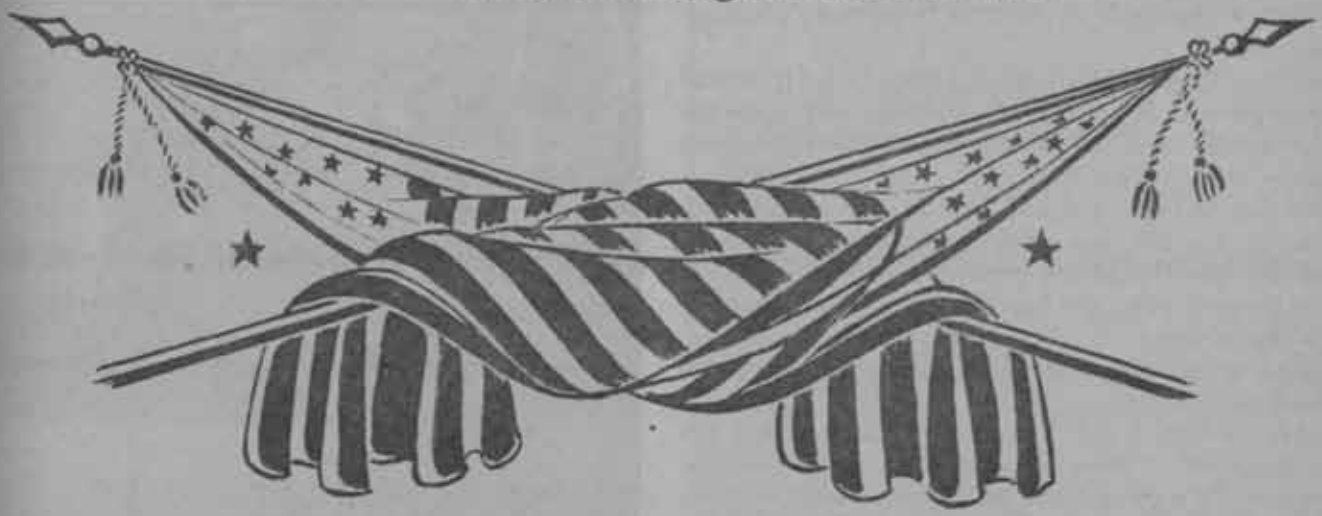
Corregidor

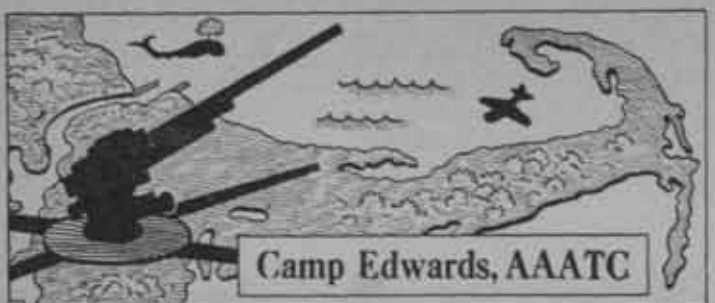
I SHALL RETURN!

MACARTHUR

"I was the leader of that lost cause, and from the bottom of a seared and stricken heart I pray that a merciful God may not delay too long their redemption, that the day of salvation be not so far removed that they perish, that it be not again too late."

General Douglas MacArthur





BRIGADIER GENERAL MORRIS C. HANDWERK, *Commanding*

By Lieutenant John H. Thornton

Two hundred of the most high-powered rookies in the world—this was the good fortune of the Antiaircraft Artillery Training Center at Camp Edwards recently. But only for a day. It was all a part of one of the most unique and educational civilian indoctrination programs yet attempted, when representatives of the important Associated Industries of Massachusetts organization were overnight guests of Brigadier General M. C. Handwerk, and observed how an antiaircraft artilleryman is made by actually taking part in the training program at the AAATC; manning the guns, sleeping in the barracks, and performing K.P. duty, and all the routine of a typical enlisted man.

The significant feature of the visit of the Associated Industries of Massachusetts members lies in the fact that each one of the business men is an outstanding leader in an important war industry. Many of those present at Camp Edwards are today making the matériel which they handled themselves and observed in action for the first time. As indicated by Ira Mosher, of Southbridge, Mass., A.I.M. president, and vice-president of the American Optical Co., speaking for the entire industrialist contingent:

"There is considerable satisfaction in knowing from our own personal experience that our Army is the best equipped in the world, due to American manufacturers. From the manufacturer's viewpoint it was particularly interesting to see the many kinds of equipment. Both as manufacturers and ordinary citizens, we were happy to see how well money has been spent in purchase of this equipment. We left camp with highest admiration for the War Department's training program."

The New England industrialist soldiers-for-a-day arrived at Camp Edwards by special train and were met at the siding by trucks from the Antiaircraft Artillery Training Center.

After they had been assigned barracks, they assembled in a recreation hall and were officially welcomed by Brigadier General Handwerk, training center commander.

Prior to mess, a few got their first taste of K.P. on a potato peeling detail while others among the managers, presidents and vice-presidents assembled, made their first visit to an Army post exchange.

Following their first G.I. meal, the "distinguished privates" witnessed an impressive review on Camp Edwards' Logan Field by a group made up of an automatic weapons, gun and searchlight battalion on foot and a half-track battalion motorized.

Later, on the parade ground, a "County Fair Exhibit" had been arranged by General Handwerk. Every type of equipment from the .45 caliber pistol to the 90mm gun and allied range equipment was put on display. Each one of the visitors had opportunity to examine close at hand the matériel employed by an antiaircraft artillery unit, vehicles, tools, tenting, radio equipment, armament. The remark of one plant manager was typical.

"Well, I'll be darned," he exclaimed when he looked at the tool kit of an antiaircraft artillery half-track on display. "I've been making those wrenches for a year and I always wondered just how they were used."

Another president of a large war plant said, "We were all very much interested as manufacturers to examine the small details of equipment in the display at what they called the County Fair Exhibition of the Antiaircraft Artillery Training Center. The men and officers are extremely proud of their equipment as we are of making it."

Nor did darkness halt the inspection, for with the night came a regularly-scheduled searchlight drill and as the great fingers of light began their search through the skies over Cape Cod, the visiting industrialists were moving quietly from control station to power plant to the light itself, in awe-filled silence at the skill and technical knowledge of the lowest private of the line in a searchlight battalion.

It was a tired group which returned to the barracks about midnight and tumbled into the double decker bunks. Gone were the frayed nerves and jittery digestive systems, as soon as the weary business men hit the mattresses. To most it seemed but a matter of minutes before the AAATC band

Signal Corps Photo

Some of the men who make the guns or their component parts, members of the Associated Industries of Massachusetts, traversing a 40mm AA weapon.

Signal Corps Photo

The old familiar cry of "come and get it" was answered 100% by the "GI's for a day."

...ss blaring forth a reveille march in the battery area. But the most impressive portion of the visit to the AAATC at Camp Edwards was yet to come.

Breakfast over, the group piled into the trucks again for a trip to the training center's firing range at Scorton Neck, overlooking Cape Cod Bay.

If the manufacturers were impressed with the static display of antiaircraft artillery matériel in the "County Fair Exhibit," they were completely overwhelmed by the accuracy and power of the equipment in action.

A battery of 90mm guns fired a number of courses, followed by the Bofors 40mm emplaced on the line for combat shooting, then as a suitable climax, a group of the powerful antiaircraft half-tracks roared up on the firing line and shredded the towed sleeve behind the plane in a breath-taking demonstration of mobility and high fire power.

After the expenditure of the ammunition on the firing line, the visitors were permitted to inspect the guns at close range, climb into the seats and actually track a plane in motion. The entire morning was spent at Scorton Neck.

To complete the picture of training antiaircraft artillerymen, the representatives of American industry were accorded a chance to observe the class instruction at the AAATC, following dinner on the second day of their visit.

Divided into small parties with officer and noncommissioned officer guides, the soldiers-for-a-day were taken to an automatic weapons battalion undergoing a normal training day. There they observed and participated in gun drill, in the use of the mechanical trainers and other aids to training, as dismounted drill and rifle marksmanship classes.

Later a battalion was watched as it negotiated the obstacle course and the guests themselves tried a few of the climbs and hurdles, even to the debarkation net.

A final treat was a demonstration of unarmed combat by students at the American Judo school at the AAATC, indicating emphatically that the phrase "get tough" was no idle term in the education of an antiaircraft artilleryman.

When the visiting industrialists piled aboard their special train again late in the afternoon, doffed nondescript uniforms and returned to swivel chairs with more than twenty-four work-packed hours as soldiers of the line, they were "convinced that a remarkable spirit of teamwork between enlisted men and officers and the executives and personnel in war industries has made the American army the best equipped in the world."

Letters of appreciation for the opportunity to visit the training center are still being received by General Handwerk from the industrialists, themselves one of the most vital factors in the success of the war effort.

One manager of a large electrical manufacturing plant, for example, was representative of the impression made by the trip.

"This twenty-four hours was, without doubt, the most interesting and instructive of my life and while I am only writing for myself, I know from the comments I heard from many of the other men, that the tour was just as beneficial to them as it was to me. It was nice to see in action some of the equipment that ———— is producing for the armed forces. It was also enlightening and encouraging to observe the fine organization, teamwork and efficiency of the troops using the equipment—I have come home with a grand feeling of pride in our Army. It is evidenced to me that their interest, morale and soldiery is tops."

Signal Corps Photo

Peeling "spuds" was a great lark for these leaders of Massachusetts industry.

The Coast Artillery School

BRIGADIER GENERAL L. B. WEEKS, *Commandant*

Allied military successes in the European Theatre took on added significance for members of the staff and faculty of the Coast Artillery School following the return of Colonel Harry F. Meyers, Secretary of the School, from a three-months' inspection tour of antiaircraft and seacoast artillery installations in England and North Africa.

Colonel Meyers, who made the tour as an official observer of the Army Ground Forces, delivered a highly informative, straight-from-the-shoulder report on his trip in the Post Theatre shortly after his return. Every officer on duty with the School, except those actually engaged in instruction at the time, was present to hear Colonel Meyers speak.

"What impressed me more than anything else I observed on that 10,000-mile trip," Colonel Meyers declared, "was the training schedule for British coast artillerymen. Have no doubts about it. The training schedule for a British soldier is tough. In their training programs, every effort is made to achieve the most realistic and rugged battle conditions. Live ammunition is used, and a soldier must be alert and in excellent physical shape to withstand the long weeks of training.

"The British coast artilleryman," the Colonel continued, "is trained to fire all the weapons which he may be called upon to fire in combat. Every type of coast artillery weapon, with the exception of the 15-inch gun, can be found in action at the Replacement Training Center and the Royal Artillery School.

"Not only are the men trained to fire in theory," and the Colonel put emphasis on this point, "but they actually fire the weapons. Not once, but many times. And I don't mean target practices under ideal conditions, either. The British fire at night, in rain or in fog, but the main point is: THEY FIRE!

"The result of innumerable target practices is evident when a British battery goes into action. The men perform their duties almost mechanically, with little or no confusion or wasted effort."

Later Colonel Meyers conferred with School departmental heads and discussed in detail the many problems and situations which he had observed and which were of specific interest to one or more departments.

The School did not have Colonel Meyers' services for long after his return, however. He had been back at his desk in Murray Hall for only a few weeks when he received orders relieving him from duty with the School and assigning him to Headquarters, Army Ground Forces, Washington, D. C. At the time this article was being written Colonel Frank E. Emery, Jr., was on duty as Acting Secretary.

Earlier in the month the School lost another of its high-ranking officers when Colonel Leon C. Dennis, Assistant Commandant, received orders transferring him from the School to the Coast Artillery Board. The vacancy in the School staff created by the loss of Colonel Dennis was filled by the transfer of Colonel William Sackville from the Board to the School.

Personnel changes were numerous but they were not the only changes in the School set-up this summer. Practically every course offered by the School has undergone some revision. The scope of instruction has been broadened, older courses have been pared down to make room for newer and timelier courses, and in almost every case the basis for revision has been the problems encountered and the lessons learned by the coast artillerymen in the field.

Perhaps the most sweeping changes have been made in the Officer Candidate School courses. The OCS class which graduated 17 September was the last group to complete the course in twelve weeks. Beginning with the next class which will not graduate until 22 October, the OCS course will be of seventeen weeks duration.

Under the new schedule the officer candidates will spend five weeks instead of three on basic subjects, such as administration, mess management, mathematics, small arms instruction, map reading, motor transportation, drill for foot troops and first aid and hygiene. Seacoast artillery instruction will occupy the next nine weeks of the embryonic officer instead of seven weeks previously allotted. With almost 100 hours of additional instruction time available, the Department of Artillery has instituted a thirty-two-hour course in the use of automatic weapons assigned for the local defense of a seacoast battery, including the nomenclature, stripping and maintenance of such weapons. Another sixteen hours will be spent in studying problems of firing on land targets with seacoast artillery armament, either mobile or fixed. Short orientation courses dealing with data computer and special equipment have also been added.

For the last three weeks of his stay at the Coast Artillery School, the officer candidate will come under the supervision of the Department of Tactics. This compares with the one week period previously devoted to the study of seacoast tactics. The additional time will be devoted mainly to field problems similar to those already incorporated in the Battery Officers Courses and the studying of basic tactics common to nearly every branch of the service. New tactical courses incorporated in the OCS program include individual protective measures (including the planting and detection of "booby traps"); foreign map reading; infantry minor tactics; terrain appreciation; and scouting and patrolling by dismounted units. The idea behind these courses, according to Colonel Donald G. Kimball, Director of the Department of Tactics, is to make the young coast artillery officer capable of organizing small seacoast artillery units into infantry units and leading them in the defense of beaches against invasion parties.

Similar new courses have been added to the Basic Officers Course (originally called the Battery Officers Course); and the Advanced Officers Course (previously referred to as the Field Officers Course) has been increased in length from five weeks to eight weeks. The additional time will be spent brushing up on seacoast artillery gunnery and studying new developments and techniques which have been introduced since the officer last attended classes at the School.

The hot summer months saw no slackening in the pace

which the Department of Training Publications con- ued to turn out training aids for the officers and men in field.

Three training films on the 155mm gun which were pared by the Coast Artillery School and filmed at Para- nt Studios in Hollywood, have been approved for re- se to troops in the field. The numbers and titles of these s are:

TF 4-2010—*Care and Maintenance of the M3 Carriage and Limber.*

TF 4-2011—*Care and Maintenance of the Carriage and Limber of the 155mm Gun M1.*

TF 4-2012—*Going Into Position With the 155mm Gun.*

Work is also progressing nicely on the filming of a series eight training films on *Controlled Submarine Mines.* Signal Corps camera crew, under the direction of Lieu- ant Charles E. Skinner, has been at Fort Monroe most the summer, with many of the scenes being shot aboard a ne planter.

lm strips which have either been approved for release should be approved for release shortly include these ten itions to the series on *Fire Control and Position Finding Seacoast Artillery; The Met Message; Operation of the ke and M1Plotting Boards; The Theory of Prediction; nstandard Ballistic Conditions; Prediction Devices; The nd Component Indicator; The Percentage Corrector ; The Range Correction Board M1A1; Displacement rrection Devices;* and *Description of the Deflection rd M1.*

In addition, a new series on *The Gun Data Computer* has been completed and should be ready for distribution rly. Film strips in this series include:

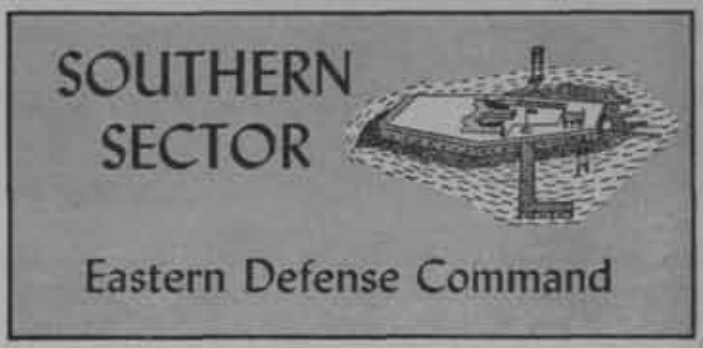
I—*The Base-End Station Data Transmission Systems.*
II—*General Operating Principles.*
III—*Operating Features and Precautions.*
IV—*Position Finding Using the Horizontal Base System.*
V—*Position Finding Using the Vertical Base System or Special Equipment.*
VI—*Operation for Prediction and Fire Control.*
VII—*The Output Data Transmission Systems.*

The Publications Section of the Department of Training blications has also been busy, with the following field nuals in publication:

FM 4-24—*Service of the Piece, 155mm Gun M1.*
FM 4-30—*Service of the Gun Data Computer M1.*
FM 4-48—*Service of the Piece, 8-Inch Gun, Mark VI, Modification 3A2, on Barbette Carriage M1.*
FM 4-95—*Service of the Radio Set, SCR-296-A.*
Tentative FM 4-91 (issued in the form of a coast artillery training bulletin)—*Service of the Piece, 90mm Gun, Fixed Mount.*

Currently in preparation are the following field manuals, hnical manuals, and coast artillery training bulletins:

FM 4-5 —*Organization and Tactics.*
FM 4-10 —*Seacoast Artillery Gunnery.*
FM 4-25 —*Service of the Piece, 155mm Gun (GPF).*
FM 4-90 —*Service of the Piece, 3-inch Rapid Fire Gun (BC).*
FM 4-96 —*Service of the Radio Set, SCR-582.*
TM 4-205—*Coast Artillery Ammunition.*
TM 4-225—*Orientation.*
TM 4-237 -*Coast Artillery Target Boats.*
CATB—*Use of the Director M9 in Firing Against Terrestrial and Naval Targets.*
CATB—*Temporary and Stand-By Fire Control Systems for 90mm Guns, Antimotor Torpedo Boat Batteries.*



BRIGADIER GENERAL H. F. LOOMIS, *Commanding*

By Captain John Lindsay

Intensive training of Southern Sector units and individuals continues at a steady pace.

Comments made by graduates of the Florida Subsector Noncommissioned Officers School clearly indicate that the school is fulfilling its purpose of instructing noncommissioned officers in their part in the military organization. It is the intention of the Commanding General that all noncommissioned officers be sent to this school. The graduates were unanimous in expressing the opinion that they had gained confidence in themselves, that the course was an excellent one from which they had gleaned knowledge never previously taught them, and that they had learned the meaning of the word "discipline."

In order that officers and men keep abreast of rapidly changing types of matériel, a series of schools was inaugurated by the S-2 section of Southern Sector Headquarters.

The modified Hardy target.

Cable plowing method of laying fire control cable.

Training is given in identification of tanks, ships, and aircraft, using the Renshaw method. The officer in charge of the school was given special training at EDC, New York. The first school was held at Fort Moultrie and attended by four officers and thirty enlisted men. Exceptionally good grades were obtained by this first class. However, in order to get the most out of the instruction, it was ascertained that the men should be put on Class "C" special duty. It was found that they should be quartered together, if possible, and be given a minimum of thirty-two hours of classroom instruction with sufficient free time in afternoons and evenings for personal study. The graduates were enthusiastic and additional schools have been inaugurated at Key West and Atlantic Beach, as well as at Fort Moultrie.

Several modified Hardy Seacoast Targets were constructed by the Sector. The General Hardy Target as described in the COAST ARTILLERY JOURNAL was modified for local conditions and proved very successful. It was found to be particularly adaptable and suitable for batteries having a low height of site and long range. An observer at sea level, without visual aid, can see this target at over 16,000 yards range. By using field glasses or the gun sight, this range is increased. It is interesting to note that yellow target cloth increased the visibility over the red-colored cloth at long ranges, and that the total cost was less than $240.00 per target.

An interesting method for the installation of Fire Control cable was developed by the Artillery Engineer, Harbor Defenses of Charleston. Approved routes for land cable installation included the crossing of swamp land, sand dunes, and a dense growth of tropical jungle, where standard cable laying machinery was useless. In many places the route of cable was across land, below flood tide elevation, where water seepage caused ditches to cave in as soon as the excavation reached water level. It was known that the American Telephone and Telegraph Company, on long trunk cable installations between cities, under similar conditions, had experimented with a cable plowing method, so information and data were secured.

From available data furnished by the Fourth Service Command, Signal Corps Branch, and the ingenuity of Mr. H. E. Dawson, Superintendent of Construction, Fort Moultrie, an improvised plow was constructed in the Area Engineer Shops. Scrap steel, together with the axles and wheels of an old motor truck found on the junk pile, furnished the material. The plow is propelled by a tractor with sufficient draw-bar power to pull the heavy drag of plow and cable reel cart attached in rear of plow. Two men are required to ride the cable trailer when in operation in order to turn the cable reel, thus relieving strain on cable being fed through the guide pipe. An additional man can also be used to advantage on the plow platform to feed cable to the pipe.

The plow was designed to bury the cable at a depth of thirty inches. In operation the blade cuts a narrow crevice through the soil; the feed pipe, fastened in rear of the blade permits the cable to slide into the crevice. The soil falls back into place due to the side pressure of plow and trailer wheels, thus completing the job, with the exception of cable splicing, at one operation.

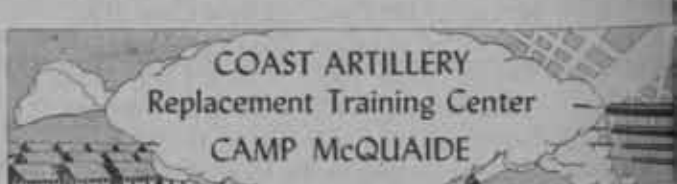
Twelve thousand feet of 25-pair, 19-gauge, tape armored cable, was placed during an eight-hour period. The plowing in of tape armored cable had never been attempted before. Check tests on each section of cable placed indicate the cable in perfect condition.

Across the sand dune section of the cable route it was found advisable to level the right of way to some extent before cable plowing was attempted. Where the grass, roots of trees, and jungle growth were heavy, an ordinary farm plow, propelled by a jeep, eased the way for cable plowing. In the swamp land where it was feared the tractor would bog down, a winch line furnished the traction.

This "plowing in" method of cable laying is especially adapted for Army requirements along seacoast installations.

On Saturday, July 3rd, a new radio program entitled *Open House at Fort Moultrie* was inaugurated from the stage of the new recreation hall. This program is on the air every Saturday between 8:00 and 8:30 P.M. over Station WTMA, Charleston. The programs are directed and produced by military personnel of Fort Moultrie. They feature interviews with "The Soldier of the Week," presentation of material from the Public Relations Bureau, Washington, D. C., a guest artist, and selections by the Fort Moultrie orchestra.

A traveling motion picture unit, an activity sponsored by the Special Service Division of Fort Moultrie, now makes weekly stops at the various outposts for the purpose of presenting G. I. Films. USO-Camp Shows visit the outposts at an average of once a month.



BRIGADIER GENERAL C. D. Y. OSTROM, *Commanding*

By Major Thomas H. Barfield

In keeping with the policy of physical and mental hardening more and more practical work in basic subjects is being taught CARTC trainees each cycle. Foremost among these activities are antimechanized and antiaircraft exercises

ivouac of several days duration, and added emphasis on marksmanship.

Trainees need little urging in digging fox-holes when fronted with the immediate prospect of being run over a tank. Normally a difficult subject to teach, defense inst mechanized attack can be practically demonstrated supplying trainees with entrenching tools, and the in-mation that tanks will overrun the area in a specified e. The use of tanks adds considerably to the realism of instruction and trainees have no hesitancy in digging p fox-holes in solid ground that will not cave in. After tanks have traversed the area, making every effort to s each fox-hole at least twice, the occupants are well vinced not only of the necessity for digging in, but of protection offered thereby.

Instruction in the use of antitank grenades is combined h that instruction described above. The tanks repair a position seventy-five to one hundred yards distant from fox-holes, then traverse the field of fire as targets for anti-k rifle grenades.

This center now includes in its thirteen week program a ouac period of several days duration. Guns, plotting ms, kitchens and all other elements of the battery are ved into field positions; in this case a state park adjacent the Camp McQuaide reservation. Practical problems, cluding camouflage of positions, local security, and de-se against landing attacks are scheduled, some of them night. Trainees are issued C, D and K rations, to be ed at all times, and which are substituted for the regular ld ration at some time during the bivouac period.

Procedure in preparatory rifle marksmanship training and ge firing has been standardized, with a view toward em-sizing that phase of training, as well as providing more form training in all battalions. Under the system now ed, every man receives concentrated instruction on each se just prior to firing that particular course. This, in dition to the normal preliminary exercises, gives extra truction at a time when it is most effective, just before ng, and also reduces confusion on the firing line.

A valuable training aid developed by Master Sergeant erson of the Training Aids Department is a miniature of targets, to be used for preliminary rifle marksmanship ctice. Activated by a windlass, the slow and rapid fire gets can be displayed at will, thus duplicating the sight-g, aiming, and time features of actual range practice.

Another innovation in the field of training aids is a ech-disassembly board. On the order of a tool cabinet h hooks and painted silhouette for each article, the rd has a place for each part of the breech, with nomen-ture displayed. With the use of this device, the trainee quickly and easily learn the sequence of disassembly assembly, as well as correct nomenclature.

In the entertainment field, a quiz show, called *How's bout It?* has been inaugurated—participants to be Army nnel only. Proving very popular in two initial per-mances, in which three officers were pitted against a number of noncoms, it is planned to continue the ows weekly. Questions are submitted by anyone desiring do so, simply by depositing question and correct answer conveniently located boxes, placed throughout camp for purpose. From a modest beginning in a battalion

Breech-disassembly Board.

school room, *How's About It?* quickly outgrew its birthplace and is now held in the spacious recreation hall.

To help new trainees acquaint themselves with Army life, Camp McQuaide, and adjacent communities, an orientation booklet is now issued to every man upon arrival. Patterned after "freshman books" used at many colleges, the CARTC booklet gives a short history of the Coast Artillery and Camp McQuaide. In addition, many items of necessary information and interest to the new soldier are concisely described. Included in this list is information about OCS and ASTP, insurance, religious services, laundry, mail service, passes, and other particulars necessary thoroughly to orient the incoming trainees.

* * *

Southern California Sector

BRIGADIER GENERAL FORREST E. WILLIFORD,
Commanding

The Fort MacArthur athletic program got a big boost with the addition of our newly remodeled gymnasium. The dedication program filled the bleachers to the eaves, with standing and kneeling room at a premium. The top billing card included Jim Londos matched with Corporal Victor Holbrook, a Battle Royal featuring Sergeant "Battling Babe" Smolinski, an exhibition of precision tumbling by the Motter brothers, and several leather poundings refereed by none other than Sergeant Joe Louis.

In the entertainment world Fort MacArthur has pinned its star high with its all soldier show *Hey Rookie!* Major C. D. Sauvinet and Sergeant Johnny Walker have nursed the "Yard Birds" along so that they have become polished amateurs, proficient with potato peeler, mop, and music. The down to earth portrayal of the soldier not at home away from home has brought down the house night after night at the Belasco Theater, and at the outposts where it has played on its mobile stage. To date over 50,000 members of the armed services, not of this command, have seen this

show free and it's still going strong with over 500,000 civilians having seen the show at the Belasco Theater in Los Angeles on paid admissions. The *Hey Rookie* cast consists of about fifty men who go into town at 6:00 PM, put on the performance, and return to Fort MacArthur after the show. They are all present for duty at the "Dawn Alert."

In the interests of developing amphibious artillerymen a new Fort MacArthur swimming pool is under construction and it will be the training objective to turn out men who are able to "swim across." After graduation from the gymnasium and the pool, nothing can stop the artillerymen from MacArthur. This pool is being built from the proceeds of *Hey Rookie*.

It seems that Fort MacArthur is a suburb of Hollywood where cinema cuties convene at the VACS Canteen for the edification of our cannoneers. Just to make sure we felt at home with the camera as well as the cuties, Fort MacArthur was "on location" for several scenes in the forthcoming film version of *This is the Army*. We finally make the grade. *"Non Celo Ferio."*

Fort Rosecrans personnel recently engaged in several exchanges of good will gestures with the Mexican government.

On 8 June Mercedes Caraza, Mexican diva, sang her 71st concert for members of the armed forces of the United States when she appeared at a Fort Rosecrans recreation hall.

This vivacious lady demonstrated a talent for cementing friendship between sister republics, as well as a voice for winning audiences. She was sent here on a good-will mission by the Mexican War Department.

On 26 June the Fort Rosecrans Public Relations staff was ordered to Ensenada, Baja California, Mexico, to assist Colonel Modesto E. Rodriguez, Fourth Army and Western Defense Command liaison officer to Mexico, in making arrangements for a ceremony of international scope.

At a colorful setting before crack Mexican troops, Lieutenant General John L. DeWitt, commanding general, Fourth Army and Western Defense Command, presented the Legion of Merit Degree of Commander to two of Mexico's highest ranking army officers of the Pacific region, General de Division Pablo Macias, and General de Division Juan Felipe Rico Islas.

Citations, signed by President Roosevelt and Secretary of War Henry L. Stimson, stated the awards were in recognition of "distinguished service in establishing good relations and in coördinating the defense of the west coasts of Mexico and the United States."

Following the ceremony, Lieutenant Colonel Rudolfo Sanchez Taboada, governor of Baja California, gave a dinner in honor of General DeWitt.

The Fort Rosecrans Public Relations staff again was ordered to Ensenada on 6 July, to handle publicity of a conference between Mexico's ambassador to the United States and high military and naval authorities of both countries. The ambassador, General Francisco Castillo Najera, flew from San Francisco for the conference.

The American officers, with one exception, returned to the United States following the conference. Ambassador Najera remained until the next day to obtain first hand information on agricultural and other problems which may form a basis for discussions of the U.S.-Mexican Joint Commission on War Problems meeting in Washington.

Ambassador Najera flew to Fort Douglas, Utah, following the Ensenada conferences, where he presented the Order of the Aztec Eagle to Major General Kenyon A. Joyce, commanding general, Ninth Service Command. The Mexican ambassador had conferred a similar decoration the week before on Lieutenant General John L. DeWitt, commanding general, Fourth Army and Western Defense Command, in San Francisco.

Pretty Auxiliary Kathryn Cummings of San Diego joined the WAAC last February and, several months later, created a pleasant stir in routine of the Fort Rosecrans Station Hospital when she used her first three-day pass to visit with her family.

Auxiliary Cummings was graduated from the motor transport school at Fort Des Moines, Ia., qualified as a special driver, and transferred to March Field where her company awaited assignment. Before she could return to her station from San Diego, she found herself on an operating table at Fort Rosecrans, where Major John J. Tom, chief of surgical service, performed an appendectomy.

Auxiliary Cummings appeared to enjoy her stay almost as much as did the hospital staff.

"I didn't dare even think of wanting something," she said, "because they'd bring it to me. You know, I wish I had another appendix they could take out."

She was asked if she liked being a member of the WAAC.

"Do I!" she said. "All of us in my company are looking forward to our new jobs with the Army."

A soldier may be able to do a neat job of assembling his equipment in a pint-size foot-locker. But when it comes to selecting a gift for the girl friend, and wrapping it up, chances are he will find his Army training of no help.

Mrs. Helen Coffin, official hostess at Fort Rosecrans, has solved that problem. All a soldier need do is come to the Post Special Service office and give her a general idea of what sort of gift or greeting card he has in mind, and Mrs. Coffin will make the purchase for him. And then, if he wishes, he may take advantage of the office's free wrapping service, especially designed for he-men who never grow fingers.

Soldiers at Fort Rosecrans are wondering what kind of a time a Private Laudrieth had in San Diego on a seventeen-hour pass way back in 1915.

Discovered during a clean-up of Btry. B's pre-World War vintage barrack, the yellowed slip of paper, dated May 1, 1915, entitled Private Laudrieth to seventeen hours of bliss in any part of the world he might choose. But due to transportation facilities at the time, there was some conjecture here as to whether he could reach San Diego and return to his station in seventeen hours without displeasing the MPs.

He may, old-timers here opined, have made it by rowboat across the bay to the foot of Broadway—if he hit the tide right. He could have hiked the twenty-mile round trip along a dusty road. Or, perchance, he may have managed to connect with the occasional street car that rattled along a now abandoned line.

The pass bore the approving signatures of Lieutenant Colonel Davis, Captain C. M. Condon, Second Lieutenant Paul Doad, and First Sergeant John W. Meehan. Wh

uld have made it all right, in case anyone wanted to stion Private Laudrieth as to his right to be outside the es. But there was no clue as to how he used this right. A roaring crowd of officers, WAACs and servicemen saw rch Field airmen go down to the first tournament de- in the fisticuff history of that station when Fort Rose- ns sent its crack boxing team to the air center on the ht of 23 June.

The home station gallery yelled as much for the visiting st Artillerymen as it did for its own pilots and bom- diers. The score – Rosecrans won one TKO, two deci- ns; March Field won two decisions. There was one draw. ghlight of the evening was Private Battlin' Buck's main with March Field's able heavy Cavanaugh. Buck is Fort ecrans' light heavy pride and promoter of the Fort's ches. He won an easy decision, had the crowd in dithers d Cavanaugh practically in stitches throughout.

The Rosecrans Cannoneers, post baseball team, met fa- us company in June when it traveled to Fullerton and nta Ana.

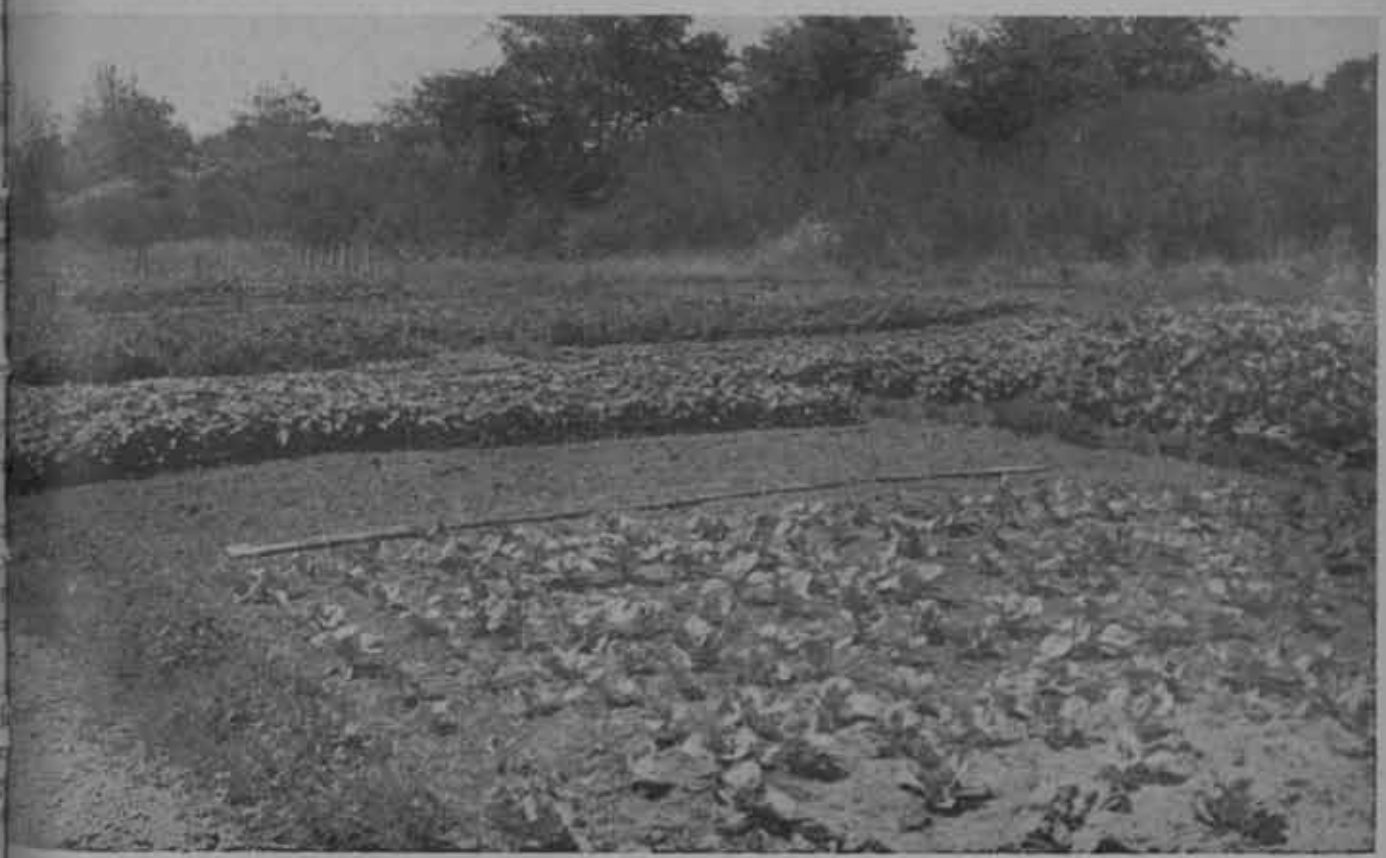
At the first city the Coast Artillerymen met the Navy hter-Than-Air Craft Base team, and beat the sailors to 1. Sergeant "Nellie" Nelson pitched a beautiful game the Cannoneers, helped the score along with a 370-foot me run.

Next day the Cannoneers trekked down the road to Santa a to meet the SAABs, which game they lost by 6 to 1. geant Earl Chapple pitched this one for the Fort, broke excellent record by allowing seven hits, three of which were off the bat of Joe DiMaggio. Joltin' Joe demonstrated his fielding ability by snaring a one-handed shoe-string on the run to short center—a crack that at first appeared a sure hit.

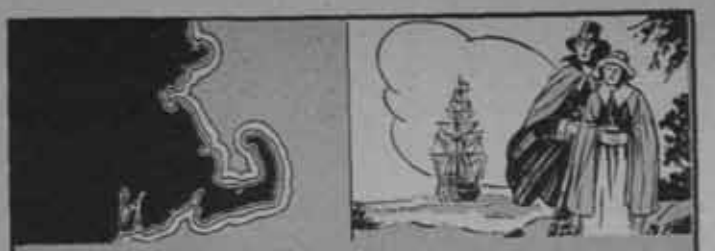
A new angle in the field of competition at Fort Rosecrans was introduced 13 July, to settle claims to drill superiority of individual batteries. Colonel Frank Drake, commanding the tactical unit on the post, instituted the competition to determine which organizations excelled in which fields. The competition consisted of three events. The first was a squad drill, performed by twelve privates and one corporal from each battery, selected from intra-battery competition as the best in the outfit. Neatness of dress, precision of movement, and knowledge of infantry drill and the manual of arms were the factors by which the winning squad was determined.

The second event was a machine gun drill, carried out by three privates and one corporal from each battery. The boys sped through the routine of stripping down a machine gun at the starting line, and, at a signal, racing the stripped gun to the finish line, assembling the piece, and firing one blank round to show that the crew was ready for action.

The final event was an individual drill-down in which sergeants competed with sergeants, corporals with corporals, and privates with privates, to determine the best in each grade. Each battery entered one soldier in each grade, and the contest was judged on precision, technique and execution. The post band played during the contests, providing tempo and cadence rhythm.



A section of the regimental victory garden at Fort Stevens, Oregon. A wide variety of fresh vegetables has been harvested daily for the use of the men of the regiment.



New England Sector

MAJOR GENERAL K. T. BLOOD, *Commanding*

By Lieutenant Charles T. Prussian

The New England Sector Soldier Show of the Air, Saturday radio product of the soldiers of New England Sector, under the guidance of the Special Service Office, has been an outstanding success since its initial broadcast last May. A combination of fast moving soldier dramatics, educational features, music, and laughter, the hour long program has attracted appreciative civilian audiences along with the troops of this and adjacent commands.

The Harbor Defenses of Boston are busily engaged completing target practices. Daily gunfire can be heard reverberating throughout the harbor. Several special practices have been authorized and will take place in the near future.

Rifle marksmanship is another phase of training which is being given considerable attention. A large percentage of the harbor personnel has already been qualified with more qualifications being completed daily.

Since the last issue of the JOURNAL, a WAAC detachment has been assigned to the Service Command complement at Fort Banks and at a very impressive ceremony held at the post theater August 6, this detachment was sworn in to the newly established Woman's Army Corps. Brigadier General Frank S. Clark, Harbor Defense Commander, administered the oath. A dance sponsored by the WAC detachment followed the ceremony.

The summer recreational and athletic programs for the Harbor Defenses of Boston have reached a new peak. Keen competition marked the Boston Harbor Baseball League. Fort Revere, winning eight games in a row, finished in first place while Fort Dawes and Fort Banks placed second and third respectively. Every post in the Harbor had a team entered in the League. In addition to the league games, the teams play games with other Army, Navy, and Coast Guard nines in and around Greater Boston.

A big morale booster for the men stationed at the Harbor outposts is the new G.I. film program. Two men tour the isolated stations every day except Sunday, showing entertaining movies and distributing candy, cigarettes, and books donated to the soldiers.

The Blue Circuit USO Shows now play ten dates in the Harbor forts as compared to six of a few months ago. In addition, variety shows, radio revues and plays are presented by entertainers from in and around Boston. Weekly dances are enjoyed by the servicemen with neighboring USO units providing the hostesses. Several famous movie stars, including Constance Bennett, Carol Bruce, and Ethel Waters, appeared at Fort Banks recently. The Caravan appeared in all posts on a whirlwind tour of stations large and small.

The Coast Artillery Band presented concerts every Wednesday afternoon on the lawn in front of the Station Hospital at Fort Banks, providing music for dances on the post and broadcasts on the New England Sector hour every Saturday.

In the Harbor Defenses of Portsmouth constant training of troops is the by-word and will continue to be emphasized during the current training season. All batteries have been conducting tests, either on their own or in conjunction with other batteries on the soundness of their respective SOP's. Actual field exercises have been held using blank ammunition to add realism to the problems. Particular emphasis is being placed on the effectiveness of the SOP's in an all-round defense and on cover and concealment of local defenses.

All outdoor activities have been stepped up including small arms marksmanship training, water commando training, swimming meets and athletic programs.

Officers attend a school on basic military subjects, four classes being held weekly. Enlisted men's schools include Blinker, Radio, and Intelligence courses.

The Harbor Defense Baseball Team led the local Service League, having won 15 games while losing three. The facilities of the Wentworth Golf Course and Swimming Pool have been made available to Harbor Defense personnel, and as a result, swimming meets and golf tournaments are being conducted.

In the Harbor Defenses of Long Island Sound, the priority is given to training of all units in preparedness for defense against any type of attack and a definite part of the program is devoted to physical conditioning and athletics. With water separating practically all installations, athletic competition is confined for the most part to inter-battery schedules. Regimental baseball teams are competing successfully with neighboring teams of the Navy and Coast Guard. Tennis and golf facilities are available to a majority of the commissioned and enlisted personnel of the Harbor Defenses with a swimming instruction program in full progress under the active supervision of the Red Cross.

The arrival of the WAC's has not revolutionized the routine of the Harbor Defenses as might have been anticipated. They have fitted into the administrative functions of the command with a minimum of confusion and are operating in an efficient manner. One need only observe them in their close order drill to appreciate the seriousness with which they accept their responsibilities. They ask favors and receive none—in short, they are real soldiers.

The target practice season is in full progress with batteries participating. An extensive schedule is being carried on, hampered only by unfavorable weather conditions. Excellent results have been attained to date.

Professional as well as local stage shows are presented at frequent intervals. With the cooperation of the Education Branch of the Special Service Division, language records are now available in the Harbor Defenses and classes covering basic vocabulary in Russian, French, Spanish, Italian and German are being conducted on a voluntary basis.

During the period June, July and August, the Harbor Defenses of New Bedford have been engaged in

-cities. Small arms firing and special service and record
-ices have been held.

The good weather has been conducive to more competi-
in athletics. A very notable distinction in this section
the showing of the baseball team which is the leader of
City Twilight League, having nine wins and one loss
their credit. Many of the outposts have contributed a
mber of the outstanding players on the baseball team
the Inter-Battery baseball competition has been very
e.

Extensive training activities have been conducted during
three month period with training marches and bivouacs.
e hardest rain of the year occurred and practically flooded
the pup tents on one such march, dampening every-
ng but the spirits of the New Bedford men.

In the Harbor Defenses of Narragansett Bay, the target
ctice season is rapidly approaching its peak. Practices
ducted so far give promise of a very successful season.
Hand in hand with tactical training, the sports program
added immeasurably to the physical condition of the
n. Baseball is very enthusiastically participated in as
ll as other sports. The spirit and competitive interest in
baseball elimination tournament speaks well for the
ned and supervised athletic season.

Major General Homer R. Oldfield, *Commanding AAATC*

By Captain Donald A. Carlson

Camp Haan, where clear, cool nights on the desert are
respite from the day's midsummer sun, an outstand-
highlight of the month's antiaircraft training was the
ay "all out" maneuvers.

anging over an area of hundreds of square miles, de-
forces under direction of Brigadier General Robert
Crichlow successfully repelled an "enemy" invasion
Tanks and commando night attacks figured promi-
ly in the show. General Crichlow, recently promoted,
own to every artilleryman—his slide rule is as familiar
the G.I. shoe.

better condition officers of the AAATC staff, Major
ral Homer R. Oldfield has ordered that a minimum of

Instructional material—with a message.

three hours per week be devoted to physical exercise. He and his executive officer, Colonel John H. Lindt, regularly attend a unique class designed to build stamina with "resistance" exercises. It is being conducted under the direction of Robert Seeger, civilian Judo expert.

Interesting, too, from a training point of view were the three AA machine gun battalions, activated at Camp Haan, which recently joined infantry divisions in the midwest after completing a brief but intensive course at our desert firing range, Camp Irwin.

For outstanding bravery displayed in rescuing the crew of a crashed and burning B-24 Liberator Bomber, General Oldfield awarded Soldier's Medals to six antiaircrafters at a review held by the 40th Group. Decorated were Captain David M. Miller of Shreveport, La.; Captain Arthur H. Walters, Albany, Ga.; Second Lieutenant Albert A. Alop, Chicago, Ill.; Second Lieutenant James E. Frick, St. Louis; Warrant Officer (jg) Kenneth S. Berger, New York, and Private First Class Raymond F. Hartzell, Manhattan Beach, Calif.

Camp Haan still has a P. T. Barnum variety of mascots —a badger, monkey, turtles, a baby coyote, a goat, and now, a lion cub. At Camp Irwin the favorite hobby, in addition to collecting semi-precious stones, is to mail a horned toad to the folks back home. Post Office employees no longer are startled at strange noises emanating from perforated cartons. As yet no sidewinders are reported to have been brought to the post office.

At Camp Irwin an interesting phase of training is paying

Action during the five-day maneuvers.

big dividends—in entertainment. From San Luis Obispo has come a Special Service Company which has aided the Post Exchanges, sponsored athletic activity, put on amateur shows and in a hundred ways has added to the recreational activity at the desert training center.

Along the special service line, the battalion commanded by Lieutenant Colonel W. E. Patrick has become well-known for its outstanding list of recreations and activities for the enlisted personnel. Weekly fight programs, trick track and field meets, water carnivals, convoys to Laguna Beach and Hollywood, aircraft identification contests, cooks and bakers contests and the organization of a battalion band are just a few of the activities that have been engineered by Lieutenant Gerald Locksley. Now at searchlight posts, a traveling PX has been established and each light position is armed with a phonograph or radio in addition to numerous games. For this battalion, life in the Army is continuous activity.

Accommodating nearly 500 men at one time, a new enlisted men's swimming pool has been opened at Camp Haan. Needless to say, it's a popular spot after an afternoon on the obstacle course.

To better alert his men to the importance of keeping mum, Major Dominic J. Cavallo conducted a contest for the best security slogan. A cash prize was awarded to the soldier who said "Talebearers Better Pick Pallbearers."

Meteorology has become a favored study in Camp with the initiation of a training class, instructed by Private Merle Rinker. Practical and theoretical, it is of four weeks' duration and designed to "determine the effect of atmosphere on the flight of a projectile." It is hoped that much can be gained for use in AA gunnery.

And Camp Haan's in the movies! At least a part of it is. To aid in the filming of *Officer Candidate School*, by Columbia Studios, an AW firing unit, a 90mm gun and crew and an "infantry" platoon have been sent to Hollywood where Lieutenant Walter O'Brien of AAATC is acting as technical advisor.

Camp Haan and Camp Irwin were visited in August by Major General Joseph A. Green, Commanding General of the Antiaircraft Command, on his tour of Western training Centers.

BRIGADIER GENERAL DALE D. HINMAN
Commanding AAATC

Airborne training at Fort Bliss attained a final degree realism this month with the arrival of six C-47 planes tactical maneuvers. In a series of tactical flights betwe airfields roughly forty miles apart, heavy stress was l on the duplication of battle conditions, particularly as gards equipment carried and unloading time allowed.

To satisfy the safety factor, planes were not loaded yond 5,000 pounds and it is a point of practice to load heavy equipment well forward so that the greater part the load falls on the wings. In addition to the basic weap the .50 caliber machine gun, the one-fourth-ton truck trailer is part of the heavy equipment carried.

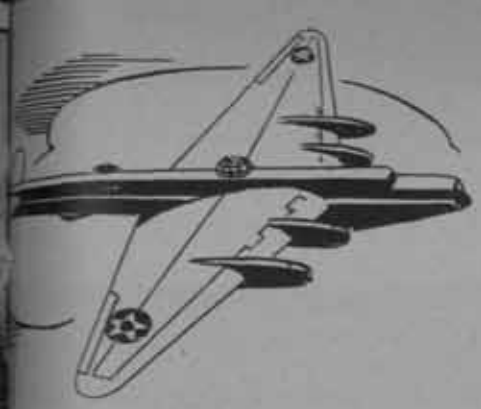
It has been found that ten minutes is within the allo able maximum for unloading under ordinary battle c ditions. However, it is understood and quite often the c that pilots must take off when a situation demands it e though the plane is partly unloaded. As a result, in o to avoid becoming stranded with incomplete equipm the men strive to bring the unloading time down to irreducible minimum and it is pointed out that not must the heavy equipment be unloaded from the pl proper, it must be removed to a sufficient distance to av fouling the plane on the take-off.

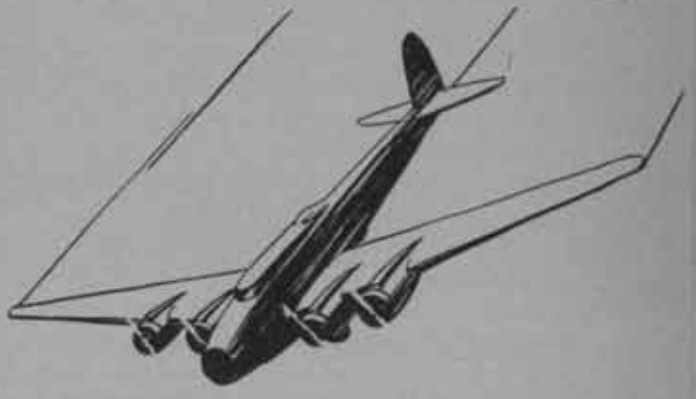
Glowing reports have come in from every theater of effectiveness of airborne troops in action and at the pres time, Fort Bliss trained airborne AA troops are on pra cally every front in the War.

Ranking civil and military officials from Mexico and El Paso area were guests at a review of the troops of Command that marked the third anniversary of the es lishment of the Training Center.

It is interesting to trace the expansion of the Center f the time when it was a wind-swept tent camp to its pre state. Regiments that originally activated this station h since been spread all over the world, including one ment that was on Bataan.

Now the total strength has been multiplied many ti and, in addition to the old area where hutments have placed tents, the AA has moved over into Fort Bliss pro and will soon take up all the area vacated by a Cav Division. The original desert firing camp that could acc modate one regiment in what amounted to almost field ditions has been abandoned and in its place there are t semi-permanent desert camps that will accommodate proximately 3,000 troops each.





BRIGADIER GENERAL BRYAN L. MILBURN, *Commandant*

By Lieutenant Colonel Charles H. Scott

Making its longest stop of the many planned in its coast to coast demonstration tour, the First Composite Antiaircraft Battery, R.A., British Army, was the guest of the Antiaircraft Artillery School for seven weeks. The British unit came to the AAA School immediately after reaching this country and after a brief period of becoming accustomed to conditions was soon busily engaged in daily demonstrations that were witnessed by officers from all parts of the service as well as many prominent officials.

All was in readiness for the British when they arrived. For a time before they reached these shores, school officials were planning to make their stay here a pleasant one. And as the British themselves expressed it, it was. A large portion of the school area was turned over to the visitors with buildings marked conveniently for their purposes and so arranged that no part of the unit was more than a few minutes walking distance from any other part.

Further facilities were extended through the Antiaircraft Command which provided an American Escort Detachment which will travel with the British and take care of so many of the tasks necessary in a coast to coast tour. This escort detachment is made up, for the most part, of officers and men formerly with the AAA School.

A highlight of the stay here was the visit of Under Secretary of War Robert P. Patterson who was greatly impressed by the British Battery and also by the AAA School's activities. After his visit, in a letter to Brigadier General Bryan L. Milburn, Commandant of the School, the Hon. Robert P. Patterson wrote: "The activities of the Antiaircraft Artillery School, which I observed on August 3rd, were most interesting and instructive. I was impressed by the eagerness of all concerned to advance their knowledge and skill in the use of the wonderful equipment which has been provided for the Antiaircraft Artillery. Please express my appreciation to the officers and men of your command."

During his eighteen-hour visit, the Under Secretary of War watched an AAA School unit emplace its equipment and then he was taken on a tour of the guns, automatic weapons, searchlights and other matériel. At each new section an officer explained in detail the function and operation of the equipment. The thoroughness of these talks seemed to impress him greatly. Later in the day he was taken to the field positions of another AAA School unit where he witnessed how various parts of the antiaircraft artillery would appear under actual combat conditions.

A parade by the British battery was one of the colorful events of the day with the visiting antiaircraft unit making a splendid show as they passed in review before the Under Secretary of War. During the day as well as after dark, the distinguished visitor watched British and American troops fire. Several hits were scored during the impressive [illegible]

So detailed was the visit of the Under Secretary of W[illegible] that he managed to find time to visit several of the cl[illegible] rooms of the AAA School and to watch officer candid[illegible] at the school go through formations. An officer candid[illegible] battalion was at the airport to greet him and were the [illegible] troops he inspected.

Late in the stay of the British Battery at the school, Li[illegible] tenant General Lesley J. McNair, Commanding Gener[illegible] Army Ground Forces, visited it. He was treated to t[illegible] sight of seeing two hits scored in a single course by a sin[illegible] 40mm gun operated by the British. His interest in t[illegible] British demonstration was great and with Lieutenant Co[illegible] nel Thomas C. Metcalf, Commander of the British Batter[illegible] explaining, he even took part in setting the fuze for o[illegible] of the 3.7 shells used by the British.

The first of the British demonstrations was held [illegible] Major General Joseph A. Green, Commanding Gener[illegible] Antiaircraft Command, who visited the British during t[illegible] very first week of their stay and made them welcome. [illegible] was for him that the British made their first parade in t[illegible] country. They also displayed and emplaced their equ[illegible] ment in an impressive demonstration. Later he returned [illegible] see a fuller demonstration when the Under Secretary [illegible] War arrived here.

In all their demonstrations, the British impressed ever[illegible] one with the speed and thoroughness with which they [illegible] into action. Hardened by years of actual combat on t[illegible] homefront during the Blitz and also in France, Nor[illegible] Africa, Malta and other theaters of war, the British troo[illegible] sparkled in their gun drills and other demonstration wo[illegible] Aside from their brilliant firing, they staged impress[illegible] maneuvers in the nearby country. In these moveme[illegible] they showed how they would attack the area and also h[illegible] they would defend.

Not content with showing how they go into action, t[illegible] British soldiers demonstrated how they take care of a[illegible] maintain their equipment and the work of the REM[illegible] which corresponds to our Ordnance. Also shown were t[illegible] many other training concerns of an antiaircraft battery su[illegible] as drills in aircraft recognition. All the details of th[illegible] work were carefully gone through in the many demonst[illegible]

General McNair sets fuze ranges for the British Composi[illegible] Antiaircraft Battery.

The British battery creates an interesting picture.

which were watched by many officers from the school well as from other sections. In addition to the demonstrations, the British held many lectures in which training thods and other subjects of interest to antiaircraft officers e fully covered.

n their public appearances the British were fully as ressive as in their technical demonstration. At the end their first week here they paraded through the streets Wilmington, N. C., and were greeted with an enthusiasm ch will well rival what the visitors are to meet in the r cities of this country. On another occasion they were guests of honor at the launching of a Liberty ship.

th the American soldiers and the civilian public ed the greatest hospitality to the visitors. Dances for enlisted men were regular events and social functions the officers were often held. The British quickly became iliar with American customs and seemed to enjoy them much—and the Americans who came in contact with seemed very pleased to have them here.

he British Battery is not a tactical unit but was made for the purpose of the demonstration tour. It was sent the United States by the British War Office at the request of the U. S. War Department. It consists of seventeen officers and 329 other ranks, who make up the three troops—one of four 3.7 inch (94mm) guns, one of six 40mm Bofors automatic weapons, and one of six searchlights.

General Milburn was away from the AAA School for a short time to witness the Tennessee maneuvers. While he was away Colonel Coburn L. Berry, Director of the Division of Training Publications, was Acting Commandant.

The Silver Star was received by Captain George A. Carter in a ceremony in which General Milburn pinned on the award. Captain Carter was granted the medal for gallantry in New Guinea where he dropped parachute bombs on enemy planes and antiaircraft guns from an altitude of 100 feet, causing great destruction.

The artist who drew the exciting cover for this issue of the COAST ARTILLERY JOURNAL is Corporal Charles W. Miller who is putting his artistic talent to good use in the Army by drawing illustrations for film strips and manuals produced by the AAA School's Division of Training Publications. He was a scholarship student at the Chicago Academy of Art as well as the American Academy of Art. Both his parents are engaged in art work.

Camp Stewart

BRIGADIER GENERAL E. A. STOCKTON, JR., *Commanding*

By Captain Walter H. Dustmann, Jr.

The past two months at this Antiaircraft Artillery Training Center saw a change in the command of the AAATC and the creation of two new Brigadier Generals for antiaircraft brigades in training here.

Brigadier General Edward A. Stockton, Jr., arrived from Fort Eustis, Va., to take command of the AAATC in the latter part of July. Relinquishing it was Brigadier General Oliver L. Spiller, who had been transferred to New Orleans, La., to assume command of the Gulf Sector of the Southern Defense Command.

Earlier in July two colonels commanding antiaircraft brigades were promoted to brigadier general. They are Oliver B. Bucher and Paul B. Kelly.

The use of competitive sports and training aids continued apace at Stewart during the past two months as vital adjuncts to the regular antiaircraft training program. Winners among the battalions were selected in a gigantic airplane contest, in a novel "X for the Axis" contest, in a splinting rodeo, in a special training aids contest, in a tug-of-war, in a camouflage contest and in softball.

The airplane contest, with some forty models of Allied warplanes competing in the second contest of its kind ever held at Stewart, was won by a model of a Martin "Mariner." The planes were built to one-tenth actual size, from salvage materials, to foster the aircraft recognition program of the camp. All planes were mounted on jeeps and paraded about the camp so that the antiaircraft troops might familiarize themselves with the types of planes represented.

The "X for the Axis" contest completed its first six-weeks round early in July. During the six weeks period a trained "spot-check" team from the AAATC Automotive Section stopped approximately twenty-five per cent of all vehicles on the reservation, giving them a thorough check, and for all discrepancies awarding them the stigma of an X, with the reminder that it was an "X for the Axis." A low average of 4.7 points won the first round for an AA battalion.

The second round of this unique vehicle-maintenance contest was closed late in August, with the percentages made by the winners proving that the contest had produced highly satisfactory results. The winning battalion had a low average of only .95, a considerable reduction from the 4.7 of the first round. The fifth place winner, with 4.25, was still below the top score for the first round.

The splinting rodeo, designed to emphasize and improve this type of medical work, was held the latter part of July and saw medical detachments from three colored battalions clinch top places. Each of the twenty-five medical detachments entered had a twelve-man team and they competed in four events: arm and leg splints, with and without blindfolds.

The training aids contest proved to be one of the largest and most fruitful ever held at Stewart, with more than 100 training aids being submitted by individual antiaircraft batteries. After the contest, held in conjunction with a huge "county fair," the aids were turned over to the AAATC Training Aids Section to be made available to all units on the post for furtherance of AA training. First prize went for a "Forward Area Sight Trainer." A battery of the same battalion took third prize with "an illustration of the observation and adjustment of fire." Second place was won by a "Range Setter and Spotter Trainer." More than 10,000 soldiers viewed the day-long contest and county fair. The fair, largest ever held at Stewart, consisted of some 250 displays in twenty-six booths.

The Tug-of-War Contest proved to be a splendid physical training stimulus, aroused a deal of competitive interest among all battalions. Both units in the finals were colored battalions. The 11 "muscle-merchants" on the winning team took the first pull in 1 minute and 25 seconds, won the second pull in 1 minute and 20 seconds, then clinched the day by making the third pull in only 35 seconds.

The Camouflage Contest held early in August uncovered many novel and efficacious camouflage ideas, with thirty-four units submitting entries. First prize was won with an artfully camouflaged gun emplacement. The second honors went to a camouflage job on a Tunisian town; and third place was awarded for a simulated machine gun emplacement. This contest also was held in connection with the county fair.

The Softball tourney engendered a spirit of high competition in all units of the post. The Post Championship will be decided in the near future when the AAATC champs meet the champion Finance team of the Army Service Forces' Service Command at Stewart.

Another popular and healthful contest now in its fourth round among the AAATC units is an Indian hand-wrestling competition, in which champs were selected for each unit which then entered eliminations to determine the camp champion.

A contest of an entirely different nature, but equally vital towards the final victory over the Axis, was a War Bond tourney with suitable awards going to the first

Signal Corps Photo

Lieutenant Colonel Lawrence Strobel's battalion wins the tug-of-war.

...aft battalions to make 100 per cent in subscriptions or ... purchases of war bonds. The winning battalion won ... contest in a five-day blitz drive in which subscriptions ...t from less than five per cent to a total of 100 per cent. ...e second unit to go 100 per cent will receive an engraved ...ue and the winner will receive a silver loving cup.

...he contest, being sponsored by the Post War Bond ...ce and the *Shoot 'Em Down*, official camp paper pub...ed by the Army Service Forces' Service Command at ...wart, will continue another month, with letters of com...dation being awarded the five battalions which make ... next highest percentages in war bond purchases.

...nother highlight of the two-months period was the ...mlining and expansion of the camp paper, the *Shoot ... Down*. It was converted into a tabloid-size publication ...ugust, and virtually quadrupled in size, going from a ... page bi-weekly to a sixteen-page weekly. The paper ...blished for personnel of both the Antiaircraft Artillery ...ining Center and the Service Command. AAATC ...s for the paper is secured and coördinated through the ...ATC Special Service Branch.

...Major General Joseph A. Green, Commanding General ...he AA Command, made a brief inspection visit in Au... and was a guest of General Stockton. . . . Stewart's ...ACS, part of the Army Service Forces' Service Com..., were sworn into the Army in August at an impressive ...mony and review of the Service Command and became ... WACS.

Camp Wallace

Brigadier General Harold R. Jackson,
Commanding AARTC

By Captain James M. Cochran

...Though activities are varied at Camp Wallace, the pro... did not call for a hurricane that reached the peak of ...ury in the late afternoon of July 27. At its height, the ...d was reported to have reached a velocity of eighty-six ... per hour. That's some storm when you add over ...ve inches of rainfall in less than two days. Though ...ge cannot be considered as "heavy," most of the build... suffered inside and outside, and the camp remained in ...ness for two nights. Many a boat has been bailed out, ... it isn't often that a building must be bailed out.

"The garage behind my quarters doesn't look as though ...ll survive the storm. You had better send someone over ...nforce it," were the words of Brigadier General Jack... to Lieutenant Colonel Alfred D. Martin, Camp Engi-

Regina Corps Photo

The camp Intelligence Office, still "at anchor" during the height of the hurricane.

neer Officer. Two minutes later the conversation was re...newed with, "Never mind! The garage has blown down."

The 35th Training Battalion, commanded by Lieutenant Colonel Stanley R. Kelley, had its hurricane troubles. This battalion, automatic weapons, was out on a field problem when the storm hit. Said Colonel Kelley later, "We didn't realize the portent of the storm before we were ordered back to Camp Wallace, but by an act of Providence and the exceptional abilities and devotion to duty of the trainee drivers, we came through one of the most hectic experiences of our lives. It was a real test of driving ability and stamina to move the battalion out of its hurricane-swept bivouac area. Many of the vehicles stalled and had to be towed, and those with canvas tops became topless, but we cleared the bivouac area by winch, towline, and manpower."

The Training Center is in the process of changing over from a thirteen-week to a seventeen-week training period. Lieutenant Colonel Elmer R. Block, S-3, and representatives from Camps Callan and Eustis, working with the Antiaircraft Command at Richmond, put in long hours drawing up our new schedule of training. The officers of the camp are very pleased with the new program and feel that after trainees complete the new course of training, they will be well qualified for duty in the combat zones.

The handicap of insufficient matériel for training is rapidly being overcome. In recent weeks the gun battalions have received additional 90mm guns, directors, and height finders to equip fully every battery. It's a big morale booster for an organization to have its complete equipment.

The Camp Wallace Air Liaison Officer, Lieutenant James L. McDaniel, reports that the 18th Tow Target Squadron stationed at Ellington Field, weathered the hurricane without excessive damage. Had it not been for the herculean efforts of the Squadron personnel who worked throughout the storm there might have been some unauthorized "takeoffs." All planes have been "wrung out" and are again giving Camp Wallace tracking and towing missions.

General Jackson designated September 15th as "Open House" for the local press, radio, and newsreel representatives, and interested magazine correspondents. Guests were conducted on a tour of observation to acquaint them with the training methods and procedures of Camp Wallace. Colonel William W. Nairn, the Commanding Officer of the 6th Training Group, was designated to arrange and conduct the tour.

Chesapeake Bay Sector

BRIGADIER GENERAL ROLLIN L. TILTON, *Commanding*

By Lieutenant Alonza F. Colonna

Progress toward the goals set for accomplishment of the Chesapeake Bay Sector's defense mission has been reflected not only in the high state of training achieved in Brigadier General Rollin L. Tilton's command, but also in the completion of engineering projects that serve the purposes of both utility and enhancement.

With the recent completion of the Fort Monroe—James River Bridge access road, the once barren approach to the fort and the main gate have undergone a complete transformation, designed both for beautification and to eliminate the necessity of entering the reservation by motorists using the Norfolk ferry.

Traffic to and from the fort, under the new arrangement, passes through double gateway pillars constructed of brick, while ferry traffic is routed along a continuation of the access road on the north beach outside of the fence.

The section of the road on the post proper runs along the site formerly occupied by an abandoned trestle of the Chesapeake & Ohio railroad, which bordered the beach front. The reclamation of the beach terrain, preparatory to the actual construction of the road, was performed some time ago by the District Engineer's office, and at the same time, the stretch of sand running parallel to the road was reclaimed and filled with a thick layer of top-soil obtained from the reservoir at Big Bethel. Eventually, a broad lawn, in keeping with the general attractiveness of the landscaping at Fort Monroe, will take the place of the familiar sand flats.

Financed with Lanham Act funds after a survey conducted by the Public Roads Administration in 1940 had demonstrated the need for improved highway facilities in this section, the access road by-passes Newport News, Hampton and Phoebus, and relieves congestion in the transportation of men and supplies to Fort Story, Camp Pendleton, the Norfolk Naval Base, Nansemond Ordnance Depot and Langley Field, as well as to Fort Monroe.

At Camp Ashby, construction has been concluded after many months of hard labor, and the command has settled down to a rigid training schedule.

Major General George Grunert, newly appointed deputy commander of the Eastern Defense Command and First Army, under Lieutenant General Hugh A. Drum, paid Fort Monroe a brief visit during August, flying here fr his headquarters in New York for a conference with G eral Tilton. After an inspection of the post, the gen was entertained at lunch by General Tilton, then left Langley Field and the return flight on the same afterno

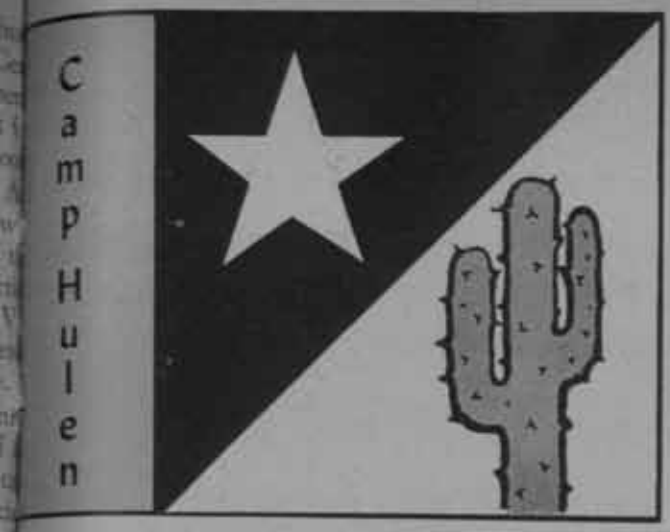
Another distinguished visitor to the sector during A gust was Governor Colgate W. Darden of Virginia, w was given an impressive demonstration of the effect of 105mm time shell during the semi-annual service prac at Fort Story. Brigadier General S. Gardner Waller, V ginia's Adjutant General, paid a visit to Camp Pendle during the month to review the troops at a retreat parade.

Colonel Wilmer S. Phillips' command at Fort Mon received new honors during August with the award of "E" for excellence to one of the batteries, and Capt Richard M. Lagatella's seacoast guns gave a convinci demonstration of accuracy in a night firing test when second ranging shot destroyed a 10-foot square tow target.

Brigadier General David P. Hardy at Camp Pendle reported the inauguration of a series of local beach defe combat matches in his brigade as a means of maintaini the tactical and physical condition of units of the comma The team method of training is employed, and scores carefully recorded and inspected. General Hardy explai that the scheme still is in the trial stage, but new proble and suggestions from participating teams are expected result in giving the brigade one of its most effectual tra ing aids. The brigade also has begun a series of organiza rifle team matches, following the pattern of the natio event held annually at Camp Perry, Ohio, and all units the post have entered five-man teams, including a c manding officers' squad led by General Hardy.

Two maneuvers at Fort Story, one conducted by Chesapeake Bay Sector, gave the harbor defenses a s test, units being subjected to realistic aerial bombing strafing, commando raids, and attacks by motor torp boats and submarines. Adjacent air force and infantry u provided planes and troops, while the mine comma flotilla represented the enemy vessels for these proble

Newly constructed approach to Fort Monroe reduces t through main gate. Motorists using Norfolk ferry are ro to right, along access road continuation outside of fe



Brigadier General H. C. Allen, *Commanding*

By Major Prime F. Osborn

Tropical and semi-tropical temperatures such as Hulen ...eriences during the long summer months are conducive ...ally to laziness and a "let-George-do-it" feeling. But ...ous physical training and conditioning, of both pre-...ed and optional varieties, has gone on vigorously. The ...p sports program, under Special Services officers has ...ished with inter-battalion softball, games with "out-..." teams, and the army equivalent of the sandlot variety. ...pment has been made available at the field house for ..., horseshoes, boxing, volleyball, and even track.

Training program activities have complemented these ...inations of the men by including regular bouts with ... physical hardening, infiltration, and functional swim-...g courses. The infiltration course is used by all person-... but the centralized physical hardening and functional ...ming classes are given to officers and selected non-... who in turn, act as instructors in their units. The ...p Hulen pier, extending some 600 feet into Tres ...cios Bay, has been fitted with platforms, 20-foot wall ... cargo net, simulating a ship's side, to be available to ... in the course and for those enjoying off-hour recre-...al swimming. The functional swimming course teaches first aid, life saving, leaping from decks with equipment, the ability to improvise life preservers from equipment and clothing. The physical hardening course is a "dry land" parallel; lasting two weeks with three hours each day, it consists of calisthenics, "log-rolling," hand-to-hand fighting, and knife and bayonet drill.

With such rigorous activities on the daily program, Camp Hulen's soldiers have turned gratefully to the entertainments and diversions by Camp and USO personnel. The AAATC band had pleased audiences each Wednesday and Sunday night at concerts played in the open air theater behind the Service Club. Admirably suited to the audience selections have ranged from the modern classics to "Hit Parade" tunes.

The Tow Target Squadron, so vital to the training of the units in camp, has been given a new and more commodious home. Moving from its cramped quarters and inadequate runways adjacent to the camp, it is now in residence a mile further north with complete facilities for the convenience of personnel, servicing of planes, and operation of all missions. Concrete runways, taxiways, and dispersal areas are among the welcome improvements. The former flying field is now being used during daylight hours by the AA units for gun and infantry drill.

Perhaps the greatest changes have taken place in the make-up of the infiltration course. Now boasting seven machine guns, smoke, aerial bombs, and fifty-seven explosive charges, it presents a real test to the man who believes himself in the "fighting mood." Although there are actually only nineteen positions for explosions, each position contains three separate charges individually wired and detonated. Six miles of tar-dipped wire went into the layout of the simulated bomb set up. A 20-foot control tower north of the area and affording unobstructed vision is the heart of the course, and from it safety officers control the firing of guns and charges. Here three banks of nineteen switches each operate the ½ pound explosives. A telephone in the tower connects with others in the starting trench to coördinate movements and the firing.

Another line, a "hot loop," goes to all seven machine guns for instantaneous instruction to the gunners. At the safety

Log-rolling, Army style

". . . and don't go near the water."

officer's elbow is a microphone connected to a public address system which issues directions to operating personnel and the troops using the course. The course is tested and re-set each day, under the guidance of a maintenance crew experienced in blasting and detonations. These men are on hand to set charges and insure maximum effectiveness commensurate with required safety precautions.

Training Center Headquarters has placed renewed emphasis on the importance of retaining the unit organization including that of the platoon section. In furtherance of the program the Commanding General has issued the following message to all unit commanders:

"1. To insure the effectiveness of small unit training it is essential that greatly increased emphasis be placed upon:

a. The development of leadership, a sense of personal responsibility and a deep feeling of devotion to duty on the part of platoon commanders, platoon sergeants, chiefs of section and squad leaders, and

b. The *tremendous importance of the noncommissioned officer and the responsibilities which attach to his position.*

Those battery commanders who have been most successful in organizing and training their units have found that the battery command is not and cannot be a 'one-man' show. While the efficiency of the unit as a whole is a personal responsibility of the commander and may therefore not be delegated, many of the subordinate duties and functions which make up the whole must of necessity be allotted to and performed by others under competent supervision of the responsible head. Remember that platoon commanders are not staff officers in the battery but actual unit commanders.

2. The platoon commanders, the platoon officers, and platoon sergeants must be developed into real leaders who habitually assume the full responsibilities of their positions and make their platoons function effectively regardless of difficulties. Combat experience of antiaircraft units in all theaters definitely emphasizes the important but often neglected rôle played by our noncommissioned officers in charge of antiaircraft guns, automatic weapons, and sear lights. Positions are so widely separated that section chi and squad leaders may frequently be totally "on their ow Emergencies will constantly arise requiring commander all echelons to act without advice or help and each mus able to handle these emergencies quickly. Command must have confidence in their ability to handle any situa that may arise.

3. The squad leader or section leader must be a RE leader in every sense of the word. He must

Have an intimate, personal knowledge of his men a their needs.

Have a thorough knowledge of his matériel and methods by which it can be effectively used.

Be able to select a suitable position and know how fortify and camouflage it effectively.

Be able to move his unit when and as required, a to go into action instantly to protect his unit or to c out his mission.

Have a thorough knowledge of field sanitation, cluding the preparation and supervision of meals in t field.

Insure the local security of his unit at all times.

Have a practical working knowledge of first aid tr ment. This knowledge may mean the difference betw life and death to members of his crew.

Have the will and drive to carry on when that and drive are all that keep his unit going.

4. An antiaircraft AW battery is not a group of offic and men working as one large group. It is, rather, a bat headquarters and two platoons, each consisting of a he quarters and four fire units. The platoons and fire un are widely scattered and each must function smoothly a effectively with an able leader, commanding a well-trai and well-disciplined crew, if the battery as a whole is carry out its mission. The platoon and section echel must be retained at all times, and never broken up if it possibly be avoided.

5. The training and leadership of the commander

of the units of the battery is of utmost importance and not be neglected.

If able leaders are not developed in every echelon of command, and if true discipline is not instilled in all of your command, disaster will follow your unit every in combat. If you develop this leadership down to your ranking noncommissioned officer and inculcate discipline in all ranks, your unit can accomplish the impossible and come through with glory and unbelievably low ..."

BRIGADIER GENERAL JAMES R. TOWNSEND,
Commanding AAATC

By Lieutenant Roger B. Doulens

Southeastern North Carolina's humid late summer and autumn proved no deterrent to the tempo of the training program in progress at this installation.

A parade of distinguished official and unofficial visitors like the ordered scheme of training and afforded various an opportunity to exhibit the progress they have made in all aspects.

Among those who visited the Antiaircraft Artillery Training Center were Undersecretary of War Robert P. Patterson and a group of high officers from Washington; Lieutenant General Lesley J. McNair, commanding general of Army Ground Forces; and Major General Archibald Sunderland, retired, who was Chief of Coast Artillery from 1936 to 1940.

Undersecretary Patterson arrived at Camp Davis early the morning of August 7, accompanied by Major General Richard C. Moore, Chief of Requirements Section, Army Ground Forces. A short while later Major General Joseph A. Green, commanding general of the Antiaircraft Command, also arrived.

Followed an almost unbroken round of the AAATC's numerous activities. Outstanding among the "shows" for Mr. Patterson were firing demonstrations by batteries of various types of antiaircraft artillery at the firing point at Sears Landing on the Atlantic. During these activities aerial targets were brought down by unerring gunners for the edification of the visitors. Ending his tour of the AAATC, Undersecretary Patterson partook of "chow" from a mess with a unit bivouacked near camp.

General McNair's visit was brief. Arriving on the morning of August 16, the AGF chief left late in the afternoon. He reviewed the Brigade commanded by Brigadier General Clare H. Armstrong, and witnessed firing at aerial targets by various automatic weapons units. General McNair also visited the 1st Composite British Demonstration Battery, which camped here at the time, and viewed an exhibition of firing by the gunners from across the sea.

Major General Sunderland "dropped in" for a visit to the AAATC's activities as the guest of Colonel Adam E. Potts, Camp Commander, an old friend. After being escorted through the camp and also viewing firing exhibitions at Sears Landing the former Coast Artillery chief expressed pleasure at the condition of troops and matériel.

Colonel Parry W. Lewis is now President of the Antiaircraft Artillery Board.

Both Brigadier General James R. Townsend, commanding general of the AAATC, and Brigadier General Clare H. Armstrong, (who returned early in the summer from temporary commands of Camps Wallace and Hulen, Texas) impressed upon troops here that there should be no slackening in the intensity of training because of recent triumphs of American arms in Sicily and in the Pacific. Rather, both stressed the importance of maintaining morale and training intensity at a high pitch. Both general officers are advocates of realism in training and this trend has become increasingly marked at this training center.

Singling out a particular unit, the 225th AAA (Searchlight) Battalion's training program throughout most of the summer is a criterion of the methods pursued. This organization conducted a more than two months' unbroken bivouac in a heavily forested region center, some thirty miles from Camp Davis.

Sergeant Andrew Schneider draws a bead on a target on the new tommy-gun range while Major Frank Anneberg operates the levers of the target control system which he devised. Simple in construction and easy to operate, the target control system has proved very successful as a means of training men in firing at surprise targets. The levers, which are made of two-by-fours about four feet long, are attached by wires to ordinary silhouette targets, which can be brought up singly, in rapid series, or two or more at a time. When the lever is moved forward, as shown in the photograph, the target is brought up into a vertical position, and when the lever is returned to its original position the target falls to the ground through its own weight. The tommy-gun range has six firing points and thirty targets, five targets for each firing point.

Spreading out over nearly 300 square miles, with battalion headquarters in Burgaw, the county seat of Pender County, N. C., the 225th underwent training in every phase of its particular function. In addition to steady application to tactical problems, the battalion underwent a hardening process which gained particular approbation from General Townsend. The area is infested with snakes and other reptiles and insects indigenous to the network of swamps and "bush" to be found in this tidewater section. The bulk of the battalion's personnel are "city" boys and near the conclusion of their bivouac they had become remarkably inured to the presence of the creepy denizens. Many of them had even partaken of rattlesnake steaks. All had learned to live and be moderately comfortable, through their own labors, under the most unfavorable natural conditions.

A "tommy-gun" range was completed to augment the continually growing array of training features embodied in the AAATC's battle conditioning course. The range employs a unique target control system devised by Major Frank Anneberg, Combat Conditioning Officer for the AAATC at this post. At small expense the control system provides ready control of the targets which may be raised at various and—to the trainee—unexpected points at which he is expected to quickly direct his fire, thus developing reflexes and marksmanship under realistic conditions.

On the athletic side, the Camp Davis "Fighting AA's" came out victorious in a spring and summer long baseball campaign in the Cape Fear League, a group of six crack sandlot baseball teams centering in the busy industrial town of Wilmington, N. C., thirty miles away. Bob Vaugh, who was a Detroit Tiger "farm hand," scheduled for big league competition later, pitched nine victories out of eleven starts. Three victories were hurled in five days.

Facing its third successive season of gridiron competition, the "Fighting AA's," under the leadership of Major Henry A. Johnson, post athletic officer, have undertaken their most ambitious schedule so far. They were to lead off with a game against Wake Forest College, September 25, followed by games with such teams as North Carolina State, Chapel Hill Pre-Flight, and the University of North Carolina. Aiding Major Johnson in the coaching field as well as playing will be last year's veteran, Johnny Mellus, former All-American tackle at Villanova and later member of the New York Giants National League professional club.

Camp Tyson

COLONEL W. H. DUNHAM, JR., *Commanding*
Barrage Balloon Training Center
By Captain F. R. Alexander

Colonel William H. Dunham, Jr., former Chief of the Barrage Balloon Division of the Antiaircraft Command, be-

Signs similar to the one above have been posted at ea entrance to Camp Tyson in a continuing drive to safegua military information.

Center at Camp Tyson on July 19. He replaced Brigad General John B. Maynard who was made commandi general of the Antiaircraft Artillery Replacement Tra ing Center at Fort Eustis, Virginia.

Camp Tyson is not an unfamiliar post to Colonel Du ham as he was a member of the War Department Board th selected possible sites for the new Barrage Balloon Traini Center. It was Colonel Dunham's personal inspection a report that finally located the new camp at Paris, Tenn see. As Chief of the Barrage Balloon Division he visit Camp Tyson many times on problems of supply and m tériel and aided in conducting most of the Antiaircra Command inspections of this Post.

An impressive provisional brigade parade and review w staged for General Maynard prior to his departure for F Eustis. A feature of this parade was the presence of n VLA balloons being towed by jeeps and one large LA b loon flying from a mobile winch. It marked the first ti that balloons have actually taken part in a formal revie Following the parade, the battalions formed in two li lines from the General's quarters to the railroad station bid him farewell.

Colonel Dunham, new BBTC commander, has ma personal visits to each battalion and talked with the m about problems that face these units.

Two batteries have just returned to Camp from extensi maneuvers in which the capabilities and limitations of b rage balloons were demonstrated. Successful execution problems assigned them was reported by the 101st Batte VLA which participated in both the Second Army m neuvers in Tennessee and the Third Army maneuvers Louisiana. Battery A of the 316th Battalion has returne from a month of training at the Desert Training Center California. Colonel Dunham was an observer for seve days at the Third Army maneuvers.

The Plans and Training Section of BBTC has erected booby-trap training course consisting of houses and shac armed with all types of booby traps and personnel mine The troops are learning effectively how to disarm the lethal devices. A .50-caliber Machine Gun Trainer h been installed in each Battalion area and fifty enlisted m who showed proficiency in this course have already be sent to the Antiaircraft Artillery Training Center at F Sheridan, Illinois, for a special course which will prep

new rifle range, covering some 960 acres and having
m distance firing ranges of 100, 200, and 300 yards
a transition range up to 500 yards, has been opened
will be used by the tactical troops.

A second obstacle course, much tougher than the first,
been constructed over the rolling hills near the Post
neer's area. It is so designed that no two successive ob-
es use the same set of muscles. A huge swimming pool
lso under construction and will be used both for recre-
n and training purposes.

All battalions on the Post have now had opportunity to
for qualification with the M1 rifle. A new battalion
rd for re-fire was established by the battalion com-
nded by Lieutenant Colonel Walter A. Johnson, when
% of the battalion was qualified. Battery B of the same
anization broke all camp records by qualifying 100% of
men.

All units have undergone further training in gas defense.
gas chamber is used to acquaint the troops with the effects
a high concentration of toxics in a small area and in
per defense against chemical warfare.

Five WAC officers, the first to be assigned to Camp
son, arrived in August and were assigned as operational
sistants. All five were Third Officers and were variously
nailed as Assistant Commissary and Sales Officer, As-
tant Finance Officer, Assistant Property Officer, Assistant
spital Personnel Officer, and Assistant Special Service
ficer.

Civilian employees on the Post have established an envi-
le record for the purchase of War Bonds through the
nthly payroll deduction plan. Over 99% of all such
ployees are purchasing bonds totalling in excess of 11%
their monthly earnings. This record compares favorably
h the best installations in the country.

Naturalization of servicemen who were foreign nationals
en they entered the Army, is a continuing process at
mp Tyson. Twenty-four enlisted men from this head-
arters were the latest to be granted citizenship before a
deral Court convened at Jackson, Tennessee. The proc-
ing has been facilitated by the new regulations which
mit applications for citizenship after having served
ditably for one month or more and upon recommenda-
n of their commanding officer.

BBTC troops have another new recreational facility:
n new bowling alleys have been constructed and are now
daily use except Sunday. Recreation for Sunday evening
provided by the two BBTC Bands who alternate playing
Sunday Evening Concert in the Camp's huge amphi-
ater. Both symphonic and popular arrangements are in-
ded in each program.

The All-Soldier musical comedy, *Balloonatics of 1943*,

Colonel William H. Dunham, Jr., new commanding officer of BBTC, visits one of the VLA balloon crews in the field and is shown inspecting a hand-operated winch. Private Clyde Furrough is standing by.

staged by the 317th Battalion proved so successful in its two showings on this Post, that the production was used as the main feature of a highly successful War Bond Rally at Mayfield, Kentucky.

Baseball held the sport spotlight during the summer months with the garrison following the fortunes of an official camp team and two inter-battalion leagues. Boxing is also gaining in popularity and regular 8-bout shows are being staged between the various battalion teams. A schedule is also being drawn up for touch-football.

Plans are being made to stimulate soldier-art on this Post and already three large oil paintings depicting military subjects have been hung in Service Club No. 1. Efforts are being made to design and execute a number of murals for the walls of both Service Clubs.

The name of General Lawrence D. Tyson, for whom Camp Tyson was named, was further memorialized when a deep-water cargo vessel, launched July 1 at the yards of the North Carolina Shipbuilding Company at Wilmington, N. C., was christened the *S. S. Lawrence D. Tyson* in honor of Tennessee's distinguished military and civic figure. The christening was performed by Mrs. Kenneth Gilpin of Boyce, Virginia, daughter of the late Senator Tyson.

The JOURNAL can supply any book in print at the usual Association discount.

Professional Interest

Two by Fuller

ARMORED WARFARE. By Major General J. F. C. Fuller. Harrisburg: The Military Service Publishing Company, 1943. 189 Pages; Charts; $1.00.

MACHINE WARFARE. By Major General J. F. C. Fuller. Washington: The Infantry Journal, 1943. 257 Pages; Charts. 25¢ (to members of the armed forces only).

Although the titles of these two books by England's tank enthusiast may be confusing, they need not be. The first book, *Armored Warfare*, was first written in 1932 in protest against the fact that the British staff schools were ignoring the subject of armored warfare. Its title was *FSR III*, which was meant to emphasize the fact that FSR II left tanks out of the picture. The present edition, the first American edition, has been annotated and thus brought up to date by the author. Although *FSR III* had little sale in England or America, Marshal Timoshenko insisted that a copy be placed in every dayroom of the Russian army, and the Germans, too, made wide use of the book. The book is a study of the use of armored vehicles in the war of the future (World War II, in this case). The Germans and Russians learned something from the book, and used what they learned.

Machine Warfare, written in 1942, is a general treatise on the use of machines in total war, and in a way, is a reëxamination of the author's theories in view of the developments during the present war. Although much of it is justification and explanation for what he wrote before, much of it also presents a new method of evaluating the actions of the present war.

* * *

Training Command

WHAT YOU SHOULD KNOW ABOUT ARMY GROUND FORCES. By Colonel Joseph I. Greene. New York: W. W. Norton Company, 1943. 204 Pages; Charts; Index; $2.50.

Even in the military service there are those who are confused by the terms "Army Ground Forces" and "army ground forces." There are others who, although affected in their daily duties by different agencies of AGF, have no idea of just what that important subdivision of the Army does. Although Colonel Greene's book was designed for civilian consumption, there are thousands in the Army who would profit by reading it.

Colonel Greene has been with AGF since its inception, as editor of the *Infantry Journal*, has been in a position to observe all the ramifications of this huge, smooth-running organization. He explains in plain English just what AGF's functions are, and how its G's, Ground Requirements, Ground Plans, the different Commands, and other subordinate units fulfill them.

A book of this sort inevitably discusses training, since training is AGF's primary function. It is in his calm, dispassionate but interesting analysis of training methods and facilities that Colonel Greene does his best work; he explains *why* military training is conducted as it is in a manner that is readily understandable. The parents of Private Joe Doaks, worried because of Infiltration Courses and the fact that Joe, who wanted to be a truck driver, is being trained as a telephone man, can put down this book with the feeling that the Army knows best.

* * *

Reasonable Approach

AIR POWER AND TOTAL WAR. By Cy Caldwell. New York: Coward-McCann, 1943. 242 Pages; $2.50.

Cy Caldwell is a peculiar aviator—he is a reasonable man who believes in the importance of the plane and of air power but still believes that there is a place for the foot-soldier and the sailor. While Seversky and Ziff want us to win the war today with tomorrow's planes, Caldwell calmly outlines his conclusions on why that isn't such a good idea—and many of his conclusions are new conclusions, resulting from what he has learned in studying the present war. Most air writers shout their loud for a separate air force—Caldwell indicates that it doesn't make a lot of difference either way, that the men and the planes would still operate to the best of their ability; and heresy of heresies, he points out that in at least one case, an air commander who was in supreme command of a theater lost important naval and ground units.

All this does not mean that Caldwell is sour on his own specialty; it means merely that he used reason instead of emotion, research instead of intuition, and that he found the airplane good, but not the only answer to the winning of a war. I am glad that this perfect answer to the air fanatics was written not by a "spray-blinded admiral, or a dust-blinded general," but by a noted flyer and aviation writer.

Complete Text

WAR. By Carl von Clausewitz. Translated by O. J. Matthijs Jolles. New York: Random House, 1943. 631 Pages; Index; $1.45.

This item belongs in our *News and Comment* section, rather than with the book reviews, since no reasonable reviewer would attempt to evaluate von Clausewitz in a military journal at this late date, especially in the space allotted. It is an important fact, however, that at last there is available the complete text of *War*, in English, and at a price that every soldier can afford. This book stands among the top five of practically every reading list for officers, and it has always been hard, even impossible to find. Here we have a full translation at a price that makes it possible for every officer to include this volume in his library.

* * *

Over-All Picture

OW THE ARMY FIGHTS. By Lowell M. Limpus. New York: D. Appleton-Century Company, 1943. 372 Pages; Bibliography; Index; Illustrated; $3.00.

One of the most pleasant surprises that can befall a book reviewer is to open a book reluctantly, and find that his prejudgment was 100% wrong. As a newspaper "military expert," Lowell Limpus is no worse than most but not as good as some. The responsibility for filling a column day after day with military observations must be deadly.

As a reporter, however, Limpus can move to the front rank. He has produced what might be termed a primer of military strategy and tactics for the layman that is a combination of fine explanation, moderate thinking, and thorough reporting. The author takes up such topics as the employment of air and ground forces, training, War Department organization, and leadership, and reduces them to terms that any reasonably intelligent person can understand. His opinions, when he gives opinions, are considered and removed from faddism, and both sympathetic and fair to all concerned. His facts, too, seem to have been checked and rechecked with experts in each field—On the whole, the book is a professional job that does credit both to the Army and the author.

A large section on organization and employment of AAA is particularly well done.

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Contemporary History

MERICA'S NAVY IN WORLD WAR II. By Gilbert Cant. New York: The John Day Company, 1943. 401 Pages; Appendices; Index; Illustrated; $3.75.

A well-known writer on naval affairs, Mr. Cant has turned out a frank, temperate, and complete account of our naval action in World War II, with some criticism, much praise, and a multitude of authenticated facts. Some of his material was hitherto secret, and because it was released in driblets to the general public if it was released at all, the layman found difficulty in correlating the information with the previous releases on the same action. Mr. Cant has correlated the information so that each action or event described includes all the information now available.

Of particular interest are the accounts of the coöperation between our navy and Britain's fleets, with explanations of why some seemingly unreasonable and inefficient aspects of that coöperation are the approved solutions to the problems presented.

Heavy but Nourishing

STUDIES ON WAR. From the pages of *Military Affa* Washington: The Infantry Journal, 1943. 158 Pages; 25

Military Affairs, the journal of the American Military In tute, is a too-little known magazine that is written and edit by students of the military, in and out of the service. The I stitute itself, unfortunately, is a rather small organization, d voted to the "deeper" aspects of military thought and milita history. Although the magazine does not run to articles technique or minor tactics, its searching articles on the broad aspects of war are often intensely interesting to the milita student who can lift his mind above the level of morning repo and Saturday morning inspections.

This paper-bound book contains thirteen articles fro *Military Affairs*, on such diverse subjects as "Moltke's St tegical Concepts," "German Ideas of a Military Society "Monetary Problems of Military Occupation," and "F Bridger: A Western Community." As Captain Harvey D Weerd, former editor of the magazine, writes in his forewo "The studies presented do not make for easy reading, but th will repay the time spent on them."

* * *

Navy Medicos

DOCTORS AWEIGH. By Rear Admiral Charles M. Oma New York: Doubleday, Doran and Company, 1943. 2 Pages; Illustrated; $2.50.

This story of the Navy Medical Corps could have been ve boring—but not at the hands of Admiral Oman. The Admir writing is superb; he has lived the story he tells. He prese the general picture of the Navy Medical Corps' work, brig ened and enlivened with little tales from his own broad e perience and the experiences of other medical officers. H humor becomes rather robust at times, but it is never in po taste in the circumstances.

The Navy Medical Corps performs much the same functi as its Army counterpart, with the additional variety occasion by service with the Marines and odd chores in foreign ports like the Army, stresses preventative medicine, but is prepar to take a hand in everything from obstetrics to psychiatry.

* * *

The Air Argument

THE USE OF AIR POWER. By Flight-Lieutenant V. E. Blunt. Harrisburg: Military Service Publishing Compa 1943. 162 Pages; $1.00.

When this book appeared in England in 1941, Lieuten Blunt had requested permission to have the book published general circulation. Permission was refused, so the author signed his commission in order to get the book published. T book created quite a stir in England, and was widely revie in Germany. This is the first American edition.

Blunt's discussion of the use of air power is orthodox some parts, and extremely controversial in others. He advoca an organization in which Ground, Sea, and Air have eq powers under an integrated department, not as separate s ices, but as one huge service. This idea, of course is not n although some of the arguments this book presents are n Although few might go along with Blunt in everything he s there is much in this short volume that will open new ave for thinking.

. . . Continued

RTICAL WARFARE. By Francis Vivian Drake. New York: Doubleday, Doran and Company, 1943. 142 Pages; Illustrated; $3.00.

The jacket of this book carries the subtitle: *The bombing pro- on which the United States Air Force and the R.A.F. are ing their operations and their plans.* The discussion of the abilities and achievements of air power is backed up by the tion of specific instances and by actual combat pictures, ough the reader cannot help but feel that the selection of erial has been weighted in favor of air power over land and power.

There is more about our bomb sight in the book than has eared in almost any other publication available to the gen- public, as well as some details of late air operations that e not appeared in the public prints. The triumphs of air bardment in Africa and in other areas make good reading. e discussion of the relationship between precision bombing the British type of saturation bombing will disappoint ex- sts in favor of both methods.

* * *

Texts and Technical

Old Reliable

E OFFICER'S GUIDE. Harrisburg: Military Service Pub- ishing Company, 1943. 567 Pages; Illustrated; Index; $2.50.

This latest edition brings up-to-date a book that has come to regarded as a "must" purchase by every officer in the Army also by many enlisted men. It combines within one volume t wealth of information both official and traditional about Army that makes this book unique among available mili- publications.

Much of this edition has been rewritten and several new tures added to catch up with current War Department nges in organization, administration, supply, and command. Even when rapid changes of station limit the number of ks an officer can carry with him, this book should be in- ded in his personal traveling library.

* * *

Two Bits' Worth

YCHOLOGY FOR THE FIGHTING MAN. Washington: The Infantry Journal, 1943. 447 Pages; Index; Illustrated; 25¢.

It is unfortunate that this valuable book carries the title it es. The word "psychology" will frighten off tens of thou- ds of prospective purchasers who should read the book, be- se it has a forbidding sound to the man without much mal education. There is nothing forbidding about the book. lls in simple (*not* childish) language how the soldier's y and mind may be used to make himself a better soldier a better man—and I don't mean this necessarily in the al sense.

How to see, how to hear, how to make use of the sense of ell—simple things, but so few of us *know* how to make the of our senses, and to understand our own minds and the ds of others. This book tells how. The book applies to the ne as well as to the general—there is something for both in twenty-five center. No soldier can read the book without ning something that will help him do his part in winning war. No one man could have the fund of information that fifty-odd writers of this book have assembled

Standard Text

ELEMENTS OF ORDNANCE. By Brigadier Gene Thomas J. Hayes. New York: John Wiley & Sons, In 1938. 700 Pages; Index; Illustrated; $6.50.

This textbook, used at the Military Academy, is essentia a revision of *Textbook of Ordnance and Gunnery*, publish in 1929. General Hayes has not only brought the work up date, but has managed to transform it into a particularly cle textbook on what is at best a difficult subject. The liberal u of charts and pictures assists the student in understanding t principles and applications of the varied facets of the subject.

* * *

Standard Text, Jr.

EXTERIOR BALLISTICS. By Brigadier General Thomas Hayes. New York: John Wiley & Sons, Inc., 1938. 98 Pa Paper bound; $1.00.

This is essentially a reprint of Chapters X and XII fr *Elements of Ordnance*, reviewed above. The two chapters titled, "Exterior Ballistics," and "Bombing from Airplanes." those whose duties require information and instruction in th two subjects, and who cannot afford the complete book, or not care to carry the large volume with them, this smaller bo should be most helpful. The reprint was designed especia for assistance to engineers and other civilians who are fac unfamiliar problems in connection with war work, but m officers also should find it valuable.

* * *

Laudable Start

THE THERMODYNAMICS OF FIREARMS. By Clark Robinson. New York: McGraw-Hill Publishing Co., 19 175 Pages; Illustrated; $2.50.

This book is intended to give beginners in interior ballis some idea of what takes place in a gun. Some of the grou covered is treated, perhaps slightly better, in Tschappat's O *nance and Gunnery*, but many of the topics treated, such the stoichiometry and physical chemistry of the burning propellants and the analysis of closed chamber experimen although available in various places in ordnance literatu have never before been collected in textbook form in Engl This much-needed integration of the subject is the princi contribution of the book.

Present restrictions on publication in this field render v difficult the writing of a satisfactory book of such a natu Yet, even with due allowance for such a handicap, there a number of errors which detract in some measure from authoritative quality of the work. The author, however, is t commended for taking the initiative in attempting such a v difficult task. With proper revision the book may fill the g need for a basic treatment of interior ballistics.

* * *

Small Arms Primer

FIREARMS AND THEIR USE. By W. T. Castles and V Kimball. Brooklyn: The Chemical Publishing Comp 1942. 216 Pages; References; Index; Illustrated; $1.98.

Anyone who tries to buy a serviceable pistol, shotgun, or these days will realize that there is a great scarcity of th articles, and that huge prices are being paid for firearms th few years ago would have been considered unservice People are buying firearms who never owned them b

good elementary textbook on the subject is of value to ers at the game. This book offers much information about of firearms and their functioning in general. More il- ions would have helped, but there is much sound infor- for the beginner in any event. Especially valuable is the references, which is a fine bibliography for further study.

* * *

The Enemy; The Ground

UTING AND PATROLLING: The Soldier, the Enemy, the Ground. Washington: The Infantry Journal. 43. 123 Pages; Illustrated; 25¢.

ing the same excellent instruction methods and style that *How to Shoot the U. S. Army Rifle* so popular and ble, this new book should be in the hands of every officer instructs, and of every enlisted man who will ever find self within rifle-shot of an enemy. Movement, concealment, what to look for, how to report it, how to search terrain, to read terrain—it's all here, and presented with inspired es that make it possible for the dullest mentality to grasp sons and to retain them.

his little book, if placed in the hand of enough soldiers junior leaders, should save many American lives. Action progressive movement pictures, humor, and down-to- straight-talking text combine to put over the lessons that never be learned in dull lectures.

* * *

The Art of Mayhem

L OR GET KILLED. By Major Rex Applegate. Harris- g: Military Service Publishing Company, 1943. 175 ges; Illustrated; $2.00.

jor Applegate comes in on the tail-end of a long proces- of mayhem-and-murder books, but he has profited by the kes of those who rushed into print earlier. The Major s in unarmed *offense*, rather than unarmed defense— for use only when unarmed. He is realistic enough to em- ize that a club is better than the bare hands, a knife better a club, a pistol better than a knife, other things being al. To the author, the art of cripple and kill is not a sport or der game, but a deadly serious business—kill or get killed. ctures, suggestions, and good plain horse sense in un- ned language make this book easy to understand. The or drives at the idea that sportsmanship and mercy have lace in the calculations while we are fighting the dirtiest ers of all time.

* * *

New Presentation

NDBOOK OF ELEMENTARY PHYSICS. By Robert ce Lindsay. New York: The Dryden Press, Inc., 1943. Pages; Index; Illustrated; $2.25.

he jacket of this unusual physics book states, "This volume signed to be used either (1) as a textbook for the college se in physics or (2) as a student's companion and hand- to accompany a comprehensive text. This volume . . . is ed to help the student to a thorough grasp of the subject; ve him ready means for clearing up the things that are clear to him; to provide a rapid review of fundamentals; to stimulate and broaden his study of physics."

s far removed from a conventional physics book, both in gement of material and in choice of problems and lan- Pages 1 to 132 are labeled "A Primer of General Physics."

An "Illustrated Dictionary of Terms" takes up pages 135 270, and a series of appendices, including a chronological tory of physics, bibliography, collection of useful form tables of physical constants, and tables fill the rest of the vol

All in all, it makes a nice desk book for any person w work entails problems in physics, or who is merely inter in the subject.

★ ★ ★

Aerial Road Map

NAVIGATION: A Manual for Student Flyers. By J Kingsland and D. W. Seager. New York: Oxford Univer Press, 1943. 91 Pages; Exercises; Solutions; Index; Illustr $1.00.

Without waste of words or time, this little book presents elements of aerial navigation in terms that are as far from t nical as might be possible. It is a serious book for serious dents, not a get-rich-quick sugar-coated pill for dabbler stresses the fundamental principles of navigation. A stu with fair mathematical background, willing to dig in serio should get much out of this little volume.

★ ★ ★

For Forgetters

ADMINISTRATIVE AND SUPPLY NOTEBOOK Checklist of Summarized Regulations. Harrisb Military Service Publishing Company, 1943. 92 Pages;

The title page of this pocket-sized, notebook style bo reads, "A handy digest of regulations governing unit admini tion and supply in convenient checklist form. An excel guide to new duties and a grand refresher that keeps yo to date with regulations." Inside we find pay tables, m phases, conversion tables, organization charts, and a cale before we get into the meat of the book, which is a well-or ized list of pertinent AR's and other publications arranged u such headings, as, "Reports of Change," "Funds," "Daily Report," "Supply Rooms," etc. Lined memorandum pages plete the notebook.

This could be a very valuable little pocket-piece, espec for the type of officer or noncom who cannot remember particular AR to cover the particular problem arising. reviewer will safeguard his review copy.

★ ★ ★

Airplane Figures

BASIC MATHEMATICS FOR AVIATION. By F Ayres, Jr. Boston: Houghton Mifflin Company, 1943. Pages; Tables; Index; Illustrated; $3.25.

Basic Mathematics covers the practical mathematics th pilot must know. Starting with the simple combinatio addition, it progresses by easy stages (without wasting time on the way) through Algebra, Geometry, and Trig etry. The exercises are practical, rather than fanciful, an right to the heart of the operation under discussion. essentials are stripped out. This is a book for self-study.

★ ★ ★

"Take Care of Yourself"

ON YOUR OWN. By Samuel A. Graham and E O'Roke. Minneapolis: University of Minnesota, 1943 pages; Illustrated; $2.00.

Written by two faculty members of the School of Fo and Conservation of the University of Michigan, this

the subtitle, *How to Take Care of Yourself in Wild* ... How to find food, directions, and comfort; which ... and other *fauna* may be eaten and how to catch them; ... plants are edible and which are poisonous; how to take ... of yourself in numerous types of emergencies; how to ... number of specified diseases—it's all in this small volume. ... only possible criticism of the work is that in places it does ... into enough detail to be foolproof for the big-city tender-

* * *

Pills and Arteries

...NDBOOK OF HEALTH. By George Cheever Shattuck ... William Jason Mixter. Cambridge: Harvard University ..., 1943. 213 Pages; Appendices; Index; Illustrated.

...ket-sized, bound in flexible cloth, this little book is de... to be read in advance, and then carried with, the ... who goes to remote places where medical attendance ... or non-existent. Information on health, hygiene, first ... and even surgery crowds its pages. The first edition of the ... was financed by the Office of the Coordinator of Informa... but the present (second) edition is published by the Har... University Press.

...use there is so much information in the volume that ... lead people to attempt to use the book in situations where ...ent medical attention is available, it is being sold only ...se who can show evidence that they are about to leave ...untry.

* * *

"Follow Me!"

...SONAL LEADERSHIP FOR COMBAT OFFICERS. ... Lieutenant Prentiss B. Reed, Jr. New York: Whittlesey ..., 1943. 116 Pages; $1.50.

...e value of this book is not in what Lieutenant Reed ... (it has all been said before) but in the way he says it. ... punchy paragraphs, a good outline, and fine organiza... of the material make this a book that younger officers and ... will be able to refer to when new situations arise.

* * *

Pause and Punctuate

...LISH FOR THE ARMED FORCES. By Wiles, Cook, ... Trevethick. New York: Harper and Brothers, 1943. 252 ...; Index; $1.50.

...haps the war is not all on the red-ink side of the ledger, ...responsible for the rise of a new technique in instruction. ...years of formal schooling left the reviewer with the im... that English textbooks must be dry and deadly, but a ...like this makes study a pleasure. Imagine, if you can, your ...ish English text with a paragraph like this:

...you a member of the 'salt and pepper' school of punctu... After you have finished writing, do you sprinkle marks ...ctuation on your sentences just to please your instructor, ...you imagine, is a 'bug' on punctuation? Or are you en... in the 'iced cake' school, holding that punctuation marks ... as a decoration, an ornament, something that is spread ...wards to catch the eye, again, of your gullible instructor? ...you belong to a third organization, the 'pause and ...use' squadron. . . ."

...e book includes sections on public speaking, efficient ... military correspondence, and military orders. Many ...examples of clear writing were taken from articles in ...RNAL.

Tojo's Lingo

ELEMENTARY JAPANESE. By E. J. Sullivan. South Pa dena: P. D. and Ione Perkins, 1943. 142 Pages; $2.50.

Reviewing a textbook on Japanese strains the powers o reviewer who knows nothing about the language, but t volume seems quite reasonable in its approach, and the voca lary is slanted for the military student. It is divided into sh lessons that should not tax the mentality of an interested st dent, and is admittedly not an attempt to fit one to wr deathless literature in Japanese. Designed for utility in exp sion, rather than perfection in grammar, the book should extremely useful for the person who wants to know enou Japanese to herd prisoners or inquire directions in Tokyo.

* * *

Good Neighbor Language

BRAZILIAN PORTUGUESE SELF-TAUGHT. By Fr cisco Ibarra and Arthur Coelho. New York: Random Hou 1943. 397 Pages; Index; $2.50.

Mr. Ibarra's *Pan-American Spanish Self-Taught* has be one of the JOURNAL's most consistent "sellers" among our ma language books, because it develops the subject logically, d not try to go too far too fast, and is very clear in its presenta This new book has been written along almost identical lin with the same methods of instruction. As important as B zilian Portuguese has become in our list of foreign langua we have found no really satisfactory book for self-study u this present volume made its appearance.

* * *

Planes and Pictures

AIR NEWS YEARBOOK. Edited by Philip Andrews. N York: Duell, Sloan and Pearce, 1943. 264 Pages; Illustra $3.75.

Philip Andrews, editor of *Air News* magazine, has assembl 355 photographs of planes of every nation, collected techn data about each plane, and produced the pictures, the techn data, and personal analysis of the planes in a large book. C fully selected pictures, a gravure reproduction process, and n inch by twelve-inch pages combine to make a book that may owned with pride by any air enthusiast.

There are pictures other than of aircraft. Some fine ph graphic character studies of the men who fly the planes le to the work a more personal touch.

* * *

Fighting Stories

Crete

AIRBORNE INVASION. By John Hetherington. New Yo Duell, Sloan and Pearce, 1943. 178 Pages; Maps; $2.50.

Now that it is too late, the publishers are offered the s gestion that the word "Crete" in the title of this book mig have boosted sales among the military. The book is an excell account of the battle for Crete, based on the latest informat and on personal interviews with more than a hundred offi and men who fought there.

The British lost Crete by not one narrow margin, but several. Several times a lucky break instead of an unlucky a few planes when none appeared because there were non appear, reinforcements at a critical time—any of these th could have won the battle by convincing the Germans

had already paid more for the island than it was worth. Freyberg estimated German losses at about 17,000, in itself was quite a price to pay. Add to this 180 and 250 troop carriers, and we can feel that Britain Greece collected for their own losses. It is noteworthy that Germans never again used the same tactics, or similar tac- any theater of war.

Hetherington balances his explanations of tactics and realistic descriptions of the fighting to make a story that is thrilling and profitable reading.

* * *

Tokyo Flight

TY SECONDS OVER TOKYO. By Captain Ted Law- New York: Random House, 1943. 221 Pages; Illustrated; 2.00.

long as young Americans like Lawson and the others made the Japan flight are led by older men like General little, megalomaniac paperhangers, balcony-strutters, and of Heaven will never realize their dreams. The planning execution of the bombing of Japan, and the return of most personnel from the raid, are the perfect answers to those a few years ago, insisted that Americans were not the men fathers were.

The "big picture" of the Tokyo raid has been told and retold. Lawson tells the little picture—what happened to Ted and his crew. With the aid of Bob Considine, he tells very well. The training for the flight, the cooperation of Navy, the forced landings, and the long road back with help of courageous and loyal Chinese makes this story one the epics of the present war.

* * *

Altitude Zero

PEDO 8. By Ira Wolfert. Boston: Houghton Mifflin Company, 1943. 127 Pages; $2.00.

Most of us know of the gallant fight that the Navy's Torpedo adron 8 put up at Midway, and how that squadron was all wiped out. To most of us, however, the fact is new that a stituted Torpedo 8, made up of some members who missed Midway battle, and replacements, fought in the Solomons vengeance against the Japs. This is the story of the fight for geance—and the dead of Midway can sleep more peacefully. Japs paid for the American dead.

Wolfert gets a bit over-literary in spots, and in a few places es close to gushing, but this is probably excusable in a ture prizewinner. But no writer could miss when he had actions of Torpedo 8 to put on paper. The cast-iron nerve the men who fly low and straight to pop their torpedoes into saddled warships, and who perform other bombing chores recreation, is unbelievable. They respect and fear AA fire—they keep on coming.

* * *

New Guinea Campaign

E TOUGHEST FIGHTING IN THE WORLD. By George H. Johnston. New York: Duell, Sloan and Pearce. 943. 240 Pages; $2.50.

If the New Guinea campaign wasn't the toughest fighting in world, it will do until another contender comes along. New nea, under the best conditions, is no health resort, and the and the privations and necessities of war did not improve for the Australians and Americans who inch-by-inch

pushed the little men into the sea or to where it might be ... dead Japs go. Mountainous jungles, steamy heat and ste... cold, insects, poor food, and jungle-wise Japs combined to m... fighting in New Guinea most unpleasant.

The author, an Australian newspaper reporter, got his ... from the firing line rather than from headquarters, with ... result that the book is not a critique by a military "expert," ... an eyewitness account of the fighting from a front-row ... Early in the book Johnston begins to give credit to the Am... cans where he thinks it is due, and the credit increases as ... campaign unfolds. The author found the teamwork and ... spirit of the Americans and Australians all that could be ... sired. The Jap, too, was all that other accounts have indicate... cruel, fanatical, jungle-trained, tenacious, and dirty both ... personal habits and in fighting methods.

* * *

Invincible Blackshirts

GREECE AGAINST THE AXIS. By Lieutenant-Colo... Stanley Casson. Washington: American Council on Pub... Affairs, 1943. 150 Pages; Paper: $2.00; Cloth: $2.50.

It was only a short while ago that the Greeks were teach... Mussolini's invincible blackshirts the folly of sending rabbi... fight lions. The war against the unholy trio has taken ma... turns since Hitler came to the rescue of his brave Roman-... the part that Greece played in bursting the bubble of ... paunchy Caesar's greatness will remain one of the heroic stor... of the war. Colonel Casson, a British liaison officer with ... Greeks, paints the broad picture of Greek courage, both in ba... and in politics. In language that is not far behind the stand... set by Winston Churchill, Casson writes a story that no Ger... and no Italian could read or hear without bowing his head.

For those who still adhere to the legend of the British ... trayal of Greece (in spite of the love the Greeks themse... bear for England as a result of England's aid), Colonel Ca... tells why Greece feared to accept help from Britain until it w... too late. This is a stirring story of a great people and a shame... campaign, told by a master writer.

* * *

Fighting Japs

BLOOD FOR THE EMPEROR. By Walter R. Clausen. N... York: D. Appleton-Century Company, 1943. 331 Pa... Illustrated; Index; $3.00.

Mr. Clausen, an Associated Press executive, has comp... reports written by himself and other AP men on the war in ... Pacific into a loosely-knit book that carries the subtitle, ... narrative history of the human side of the war in the Pacif... Most of the stories have appeared before in AP stories in ... newspapers—some of them are new, and some have det... added that could not be released at the time the deeds w... performed.

* * *

Mare Nostrum

MEDITERRANEAN ASSIGNMENT. By Richard McM... lan. New York: Doubleday, Doran and Company, 19... 332 Pages; $3.00.

Since it appears we must have books by war correspond... we could do with more of this type. Mr. McMillan writes ... reporter, rather than as a reporter with literary ambitions. ... knows what to write and how to write it. His war travels ... him through the campaign in Greece, and with the E...

through the days of shadow to the days of victory. He the little pictures with the big pictures so skillfully that finished product is a view of the war that is a model of ty and completeness.

The author is a Scotsman who has been a top-rank foreign espondent for years. He is proud of the achievements of the ers of the King, both British and Empire, but he does not ate to swing the axe of censure when he feels it necessary. is critical of ineptitude where he found it, and unsparing raise when praise was due. To him, the British and Empire iers are the world's finest, and with leadership and matériel atch, those soldiers are unbeatable. He is not niggardly in praise of American matériel and methods.

There have been longer, and more detailed stories of what ened in Greece and Albania, but none better.

* * *

The *Boise*

K OUT THE BIGGEST. By Frank Morris. Boston: Houghton Mifflin Company, 1943. 132 Pages, Illustrated; 2.00.

By this time, the name of the cruiser *Boise* is as well-known as the *Monitor* or the *Oregon*. The story of the *Boise's* le near Guadalcanal, in which she sank six Jap fighting s and took a terrific pasting herself, makes one of the most lable of the war. Frank Morris does very well (with excel- material to work on, we must admit) in presenting a blow- blow account of the cruiser's action and the troubles that owed it. There is a lesson running all the way through the k that has been taught millions of times in modern war, and well be stressed some more—thorough training of personnel, thorough maintenance of material, pay off in battle. The le was a short one, and every motion had to count. The ggle to keep a battered ship afloat and get her to port was a g one, and the men had to be fired with determination and fied with skill to bring her in. They were, and they did.

* * *

Emotional Witness

E SKY IS MY WITNESS. By Captain Thomas Moore, ., USMC. New York: G. P. Putnam's Sons, 1943. 135 ages; $2.00.

An acknowledgment to "E. Ralph Emmett for his help in the paration of this book" might be the key to why this little onal experience account will not sit too well with military onnel. Moore, a Marine dive-bomber pilot, grew up in a h section of New York, later moving to Brooklyn, tried his d in the merchant marine, and finally found his way into rine Corps aviation. He fought well at Midway and at dalcanal. He tells the experiences and facts of air combat ll. It is when the book becomes "literary," however, that the tary reader begins to get uncomfortable. Frankly, the ary touches verge on the hysterical, and seem forced and ed. And the last 250 words do not belong in a book written a soldier during wartime.

* * *

Tough Seaman

BOAT PRISONER. By Archie Gibbs. Boston: Houghton Mifflin Company, 1943. 208 Pages; $2.00.

's a lucky break for the Army that Archie Gibbs is a mer- nt seaman, and not a soldier. Summary courts, company shments, and Section VIII's would have been flying. After rd and mean youth, including four years in a reform school

that was more on the order of a Nazi concentration c... Archie Bibbs went to sea. At sea he got along none too w... with his superiors over a period of years, until the war, sev... torpedoes, a German submarine, and *Life* magazine combi... to make Archie one of our war heroes.

Gibbs was torpedoed twice within twenty-four hours, tak... aboard the submarine that did the torpedoing, kept for f... days, and released in Curacao. As a type hero of our merch... marine, Gibbs was feted and taken on a war bond tour. T... book is his autobiography; the events that lead up to his fa... and the fame itself, take only the last few pages. The reviewe... who has stood a few lookouts and chipped a few acres of d... paint himself, hopes that Gibbs will not be accepted as a ... portrait of our average merchant seaman. Gibbs is a spec... hard, case—but still a hero, one of the men who take the sh... and men and materials where they have to go in the widesp... war.

* * *

History

History with a Twist

THE STORY OF AMERICA. By Hendrik Van Loon. N... York: Liveright Publishing Company, 1943. 480 P... Index; Illustrated.

If our teachers, back in high school days, had introduced ... to American history with a book like this, instead of the e... as-dust chronicles of dates and battles that soured us on t... subject for years to come, most of us would know more abo... history.

Van Loon's style of writing and his simple but eloquent dr... ings are well known to most literate Americans. When he ta... on a subject like American history, we expect to find the fa... behind the facts, biting wit, and patient philosophy. We a... not disappointed. Sentences like "Lord Frederick North b... longed to a family that gave England a great number of d... tinguished politicians and Epsom salts," or, "And then, as ... ways in life, the unexpected happened. North and South h... fought each other for the supremacy of the Union, and ... West ran away with the victory," indicate the live quality ... the writing.

American history, as written by Van Loon, is American hi... tory according to one man's opinion—but the man has so... refreshing opinions.

* * *

Pan-American History

THE STORY OF THE AMERICAS. By Leland Dew... Baldwin. New York: Simon and Schuster, 1943. 700 Pa... Maps; Index; $3.50.

It is difficult to be friends with people we know little abo... If our Good Neighbor policy is to be more than an emp... phrase, it might be worth our while to learn something of t... history of the countries south of the Rio Grande, and especia... of their histories in relation to our own.

Captain Baldwin has given us an excellent starting po... While most of us know vaguely that there were Spanish set... ments in the New World prior to John Smith and John Alde... that is the extent of our knowledge. The author has written ... readable history of the Americas, North and South, that fl... like a novel, and that in places, carries the interest of an ... venture story. Blood, cruelty, suffering, and holy self-sacri... went hand-in-hand in the making of South and Central Am... ica. Pillage, slavery, piracy, war, revolution, and religion w...

mingled with an inhospitable climate, fertile fields, and mines to give that continent its history.

is no longer fashionable to speak contemptuously about American revolutions—Captain Baldwin explains why history of our neighbors to the South has been so turbulent, why that turbulence is slowly but surely dying out.

* * *

The Navy

E UNITED STATES NAVY: A History. By Carroll ers Alden and Allan Westcott. Philadelphia: J. B. Lippin- Company, 1943. 440 Pages; Index; References; Illus- ed. $5.50.

his is primarily a text and reference book, rather than a ular-type continued story of the romance of the Navy. ering the period from the early days of the Revolution to the end of 1942, the authors have had to condense their unt in every way possible to get it into 440 pages. They stuck to the facts, with some interpretation of the impact olitics and international affairs on the Navy, and *vice versa*. chers for stories of the romance and glory of our sea arm have to find them between the lines of the facts presented book is a serious work of history, competently executed.

* * *

Through the Rockies

E SUN TRAIL. By Merritt Parmelee Allen. New York: ngmans, Green and Co., 1943. 198 Pages; $2.00.

he first white man to cross the Western desert from the ssippi to California, according to Mr. Allen, was Jedediah g Smith, who made the trip, with some companions, in ch of a new route to ship out furs. Smith, a partner with on and Sublette in the fur trade, was killed later by ans, but his maps and journals were of assistance in open- the trail to the west.

his account is biography, embellished with fiction, as recon- ed from contemporary accounts. For the Western story er and for those interested in American history, it should much interest. A touch of juvenile moralizing does not d in spoiling the thrilling account of the journey to Cali- a, where the Mexicans and the Church combined to run ntry much different from our own.

* * *

College Course

ERICAN HISTORY FOR COLLEGES. By David S. uzzey and John A. Krout. New York: Ginn and Company, 43. 934 Pages; Index; Illustrated; $4.00.

iginally published in 1933, this book has been revised and ged by chapters on the significance of the European back- nd of American history and the important developments e colonial period. It has also been brought up to date by a ding chapter on the history of the last six years. The s have been soft-pedaled, and the "philosophy" of history asized.

* * *

Civil War

FLICT: The American Civil War. By George Fort ton. Washington: The Infantry Journal, 1943. 356 s. 25¢ (to members of the armed forces only).

his is another of the Infantry Journal's Fighting Forces s of 25¢ reprints. The full text of the original book is pre-

sented, with paper covers, at a price within reach of every s dier. *Conflict* first appeared in 1941, and was instantly cepted as one of the truly great histories of the Civil War.

★ ★ ★

Vipers Within

ABRAHAM LINCOLN AND THE FIFTH COLUM By George Fort Milton. Washington: The Infantry Jour 1943. 247 Pages; 25¢ (to members of the armed forces onl

The regular edition of this book was reviewed in the N vember-December edition of the JOURNAL. The present editi is paper-bound, unabridged, pocket-sized, and much less pensive.

★ ★ ★

Miscellany

Democracy at Work

SCHOOL OF THE CITIZEN SAILOR. New York: Appleton-Century Company, 1943. 578 Pages; Referen Index; $3.00.

The Army version of this book, *School of the Citizen Sold* was reviewed in the September-October (1942) issue of JOURNAL. The new book is a combined course in Naval doctrination and citizenship, designed to assist the seri minded recruit to crystallize his ideas on why and what we fighting. It is also an excellent source book for citizenship "orientation" lectures. Much of the material appeared in earlier Army version.

★ ★ ★

War Poems

REVEILLE: WAR POEMS BY MEMBERS OF OUR AR FORCES. Selected by John Kieran, Grantland Rice, Daniel Henderson. New York: A. S. Barnes & Co., 19 244 Pages; Index; $2.00.

Several hundred short poems written by all ranks from A colonels to WAVE apprentice seamen should include at a few to suit almost any taste. The styles of writing range f poor Byron through satisfactory Eddie Guest to good Ja Whitcomb Riley. Some of the ballads are particularly g and one poem, *So Sorry*, by Corporal John Alexander, sh be honored by recitations at American Legion smokers for m years after "the duration."

There is much that is pure trash in this book; much shows promise. Lovers of the more earthy type of poetry find some nuggets in this collection.

★ ★ ★

RIFLEMAN DODD. By C. S. Forester. Washington: The fantry Journal, 1943. 209 Pages; 25¢ (to members of armed forces only).

The regular edition was reviewed in our May-June i This Infantry Journal paper-bound reprint presents the text of this story of a self-reliant soldier at a low price.

★ ★ ★

War Novel

RETREAT FROM ROSTOV. By Paul Hughes. New Y Random House, 1943. 586 Pages; $2.75.

Possibly it isn't cricket to write a historical novel so cl time to the history it depicts, but Paul Hughes has done i

it rather well. In 586 pages (it could have been done in 386), he writes of the German capture of Rostov and the retreat that followed the capture by a week. The big picture of the battle is over-wordy, but in the numerous little pictures that he draws around his many characters, Hughes is at his best. He kills off his characters with the careless abandon that characterizes the familiar Russian novels, but he improves on the Russian writers in one important detail—he uses only one name to a character, and it is no mental strain to remember whom he is writing about.

* * *

Britain's Headache

INDIA'S PROBLEM CAN BE SOLVED. By De Witt Mackenzie. New York: Doubleday, Doran and Company, 1943. 265 Pages; $3.00.

Without a word about the temerity of a writer, even an Associated Press news analyst, who visited India in World War I, and then again for six months in World War II, and who then proposes a solution for one of the most perplexing problems of modern times, we can say that Mackenzie writes an interesting book. What he tells about India and its leaders, the caste system, the native princes, the Viceregal government, and how they weave the pattern of today's problems, is good reading. He manages to tell, more clearly and in fewer words, the story of what is going on in India. We have been told this story before, in millions of words, but probably not as clearly and as honestly as Mackenzie does it. He weighs the claims and counterclaims of each of the great factions, with fairness. As for the solution the author presents, it is a curious mixture of kindness and firmness, "giving them what they want," and also giving them what's good for them, that it will take someone much closer to the problem than the reviewer to evaluate.

* * *

Stalwart Joesten

STALWART SWEDEN. By Joachim Joesten. New York: Doubleday, Doran and Co., 1943. 205 Pages; Index; $2.50.

Mr. Joesten's conclusions about Sweden seem to indicate that a large proportion of the people are pro-Allied; a dangerous group are pro-Axis; and the government itself is sitting on the fence, playing the game that will be best for Sweden's business and for the chances of staying out of a shooting war. There is much criticism of the Swedish government in the book, much of it petty, some of it serious, if true. The author, who spent several years in Sweden as a combination German refugee—foreign correspondent, throws doubt upon the validity of his conclusions by his obvious resentment because he was forced to perform such menial labor as washing dishes in a detention camp operated for aliens without proper papers.

* * *

Sammy the Samurai

JAPAN FIGHTS FOR ASIA. By John Goette. New York: Harcourt, Brace and Company, 1943. 242 Pages; Index; $2.50.

For five years INS man with the Jap army in China, and a resident of the Orient for twenty years, John Goette paints a far from rosy picture of the work cut out for us in setting Japan back on her heels. Even after we thrash the Jap army and navy until they say "uncle" in pictographs, we will never undo completely the damage they have done to white influence and prestige in the economic and political sphere, according to the author. The Japs made no idle boast when they said the war would last a hundred years—even if we can settle their military hash in a year or two, the economic problems that the Japs set up (with long-range foresight) will well take a hundred years to settle. Even Germany does not have a preferred status in Japan's plans for the Orient—in fact, the author states that the Japs take more delight in humiliating and insulting Germans than they do Americans, partly because they fear German espionage and economic penetration more than they do ours.

* * *

THE MILITARY STENOGRAPHER. By Qheena Hazelton. New York: The McGraw-Hill Book Company, 1943. 133 Pages; $1.00.

This book should be of considerable value to both military and civilian personnel who, for the first time, are coming into contact with Army paper-work. Shorthand brief forms and word signs are given for words and phrases used exclusively by the service. Also included are a list of general military terms with abbreviations; a technical preview and form for transcription of a court-martial trial; and a section covering salutations and signatures used in military correspondence.

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